COMPETITIVE PERSONALITY AND WORK OUTCOMES: A META-ANALYSIS AND SCALE DEVELOPMENT

BY

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DISSERTATION

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ABSTRACT

The current paper makes five contributions to our understanding of competitive personality. First, I define competitive personality as a trait. Second, I review the historical origins of the trait, as it emerged in four adjacent subfields within psychology (i.e., health psychology, psychology of gender, cross-cultural psychology, and psychoanalysis). Third, I compile the most-used measures of competitive personality (most of which have not been labeled "competitive personality"), and empirically evaluate the convergent validity amongst these measures using confirmatory factor analysis. This effort also entails the development of the Competitive Personality Scale, a brief scale that reflects the essential content of the trait. Fourth, I establish the nomological validity of competitive personality vis-à-vis other personality traits, job attitudes, work behaviors, and demographics. Fifth, after demonstrating the variety of psychological literatures that have surreptitiously focused on competitive personality, I use meta-analytic methods to summarize evidence across these literatures on the relationships between competitive personality and other related constructs. Results support the contention that competitive personality is an important facet of human individual differences, that it has been studied under many different labels, and that it predicts critical outcomes in work organizations.

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CHAPTER 1: INTRODUCTION

A swimmer practices seven days a week in order to beat a long-time rival at an upcoming race. The host of a party describes her new sports car, then a guest one-ups the story by describing her new yacht. A salesperson poaches clients from his teammates so that he may outperform them. Manifestations of competitive personality abound, both at work and in our everyday lives. As such, studying competitiveness as an individual difference holds the potential to provide new insights in organizational research.

The study of competitive personality stems from four distinct literatures: health psychology, psychology of gender, cross-cultural psychology, and psychoanalysis. Each of these fields includes independently generated notions of competitive personality, yet a remarkable degree of overlap exists among the conceptualizations. Whether the proposed underlying motive is "maintaining or enhancing feelings of self-worth" in the neo-Freudian tradition (Ryckman, Hammer, Kaczor, & Gold, 1990, p.630) or "to become distinguished and acquire status" in the cross-cultural psychology tradition (Triandis & Gelfand, 1998, p.119), competitiveness drives individuals to achieve, and to measure achievements relative to others (Heggestad & Kanfer, 2000). Across literatures, competitive personality constructs constitute "the desire to win and be better than others" (Spence & Helmreich, 1983, p.41) and an inclination toward "performing better than coworkers and peers" (Kanfer & Ackerman, 2000, p.474).

The current paper makes five contributions to our understanding of competitive personality. First, I define competitive personality as a trait. Second, I review the historical origins of the trait, as it emerged in four adjacent subfields within psychology. Third, I compile the most-used measures of competitive personality (most of which have not been labeled "competitive personality"), and empirically evaluate the convergent validity amongst these

measures using confirmatory factor analysis. This effort also entails the development of a brief scale that reflects the essential content of the trait. Fourth, I establish the nomological validity of competitive personality vis-à-vis other personality traits, job attitudes, work behaviors, and demographics. Fifth, after demonstrating the variety of psychological literatures that have surreptitiously focused on competitive personality, I use meta-analytic methods to summarize evidence across these literatures on the relationships between competitive personality and other related constructs. Results support the contention that competitive personality is an important facet of human individual differences, that it has been studied under many different labels, and that it predicts critical outcomes in work organizations.

What Is Competitive Personality?

Before defining competitive personality, two important distinctions must be made. First, I highlight the difference between competitiveness as an individual difference and competitiveness as an environmentally-elicited behavior. Second, I describe the difference between so-called "healthy" and "unhealthy" competitiveness.

Trait vs. Environmental Competitiveness

Some individuals seem inherently more competitive than others; hence, competitiveness can be thought of as an individual difference or trait. Personality traits, or "patterns of thoughts, feelings, and actions" that characterize individuals across time and situations, create consistency in a person's behavior and allow multiple persons to be differentiated from each other (McCrae & Costa, 2008). Competitiveness as a personality trait, or an influence on behavior that originates from *inside* an individual, can be contrasted with competitive environments, which also influence behavior but originate *outside* the individual. Indeed some environments magnify our competitive sides more than others. Kohn (1992) defined *structural competition* as a

situation that presents a reward to multiple people, only some of whom can attain it. In other words, structural competition constitutes an objectively competitive environment. *Competitive psychological climate*, in contrast, refers to how competitive an environment is perceived to be; in other words, a subjectively competitive environment (Brown, Cron, & Slocum, 1998).

It is worth noting that competitiveness as a personality trait and environmentally-influenced competitiveness are empirically related, but distinct. For instance, trait competitiveness correlated with individual perceptions of competitive climate (r = .29, p <.05, N = 274-916) as well as group-level perceptions of competitive climate (r = .17, p <.05, N = 274-916) in a sample of IT workers (Fletcher, Major, & Davis, 2008). Similarly, trait competitiveness predicted competitive psychological climate in a task that was essentially individual, although participants had the option to share knowledge with others completing the same task (standardized β = .32, p < .001, N = 403; Connelly, Ford, Turel, Gallupe, & Zweig, 2014). Trait competitiveness and competitive environments also demonstrate some interplay in affecting other outcomes: Shrock, Hughes, Fu, Richards, and Jones (2014) found that competitive climate moderated the relationship between trait competitiveness and sales performance, such that individuals with higher trait competitiveness performed better when they were situated in highly competitive climates (interaction term β = .22, p < .01, N = 117). Ultimately, as Friedman and Rosenman (1959) note, “We suspect that a behavior pattern is the result of a specific reaction of the individual to his particular environment, in which case the pattern might be altered by a change either in the person's reaction or in his environment” (p. 104); it seems that competitive people and competitive environments often co-occur.

In summary, competitiveness as a personality trait and competitive environments appear to be distinct concepts that influence each other in practice. The current research focuses on competitiveness as a *personality trait*, or competitiveness as it arises from *inside* individuals.

"Healthy" vs. "Unhealthy" Competitiveness

Because competitive personality involves beating out others for achievements, it can have a negative connotation. The literature described below advocates differentiating between positive, healthy forms of competitiveness (which focus on attaining goals and bettering oneself) versus negative, 'unhealthy' forms of competitiveness (which focus on winning and outperforming others).

Ryckman, Hammer, Kaczor, and Gold (1996) articulated this distinction by proposing that personal development competitiveness (PDC) should be measured differently from hypercompetitiveness (winning-oriented competitiveness). As a construct, PDC differs from hypercompetitiveness in several key ways. First, PDC entails the objective of task mastery rather than winning. Second, PDC focuses on personal growth rather than comparisons with others. Third, in PDC others are not seen as impediments to goal attainment. Ultimately, Ryckman et al. (1996) described PDC as a healthy form of competitiveness. The same authors found only a small correlation (r = .06, *n.s.*, N = 106) between "healthy" personal development competitiveness and "unhealthy" hypercompetitiveness. Subsequent studies found moderate correlations between hypercompetitiveness and personal development competitiveness (i.e., r = .41; Mudrack, Bloodgood, & Turnley, 2012; r = .32, Collier, Ryckman, Thornton, & Gold, 2010). Ultimately, empirical evidences suggests the hypercompetitiveness and PDC may be related, but constitute distinct concepts.

Similarly, Griffin-Pierson (1990) differentiated between interpersonal competitiveness, characterized by a desire to win and outperform others, and goal competitiveness, characterized by a desire to obtain some personal goal and be the best one can be. Griffin-Pierson (1990) found only a small correlation (r = .03, *n.s.*, N = 195) between "healthy" goal competitiveness and "unhealthy" interpersonal competitiveness.

In addition, Gill and Deeter's (1988) Sport Orientation Questionnaire (SOQ) includes three subscales: (a) a competitiveness subscale, (b) a win subscale (both of which emphasize winning against others, and are correlated r = .59 on average), and (c) a goal subscale (which emphasizes striving to meet personal performance goals). Gill and Deeter (1988) found small to moderate correlations between the goal subscale and both the competitiveness subscale (r = .44 on average) and the win subscale (r = .20 on average), in three independent samples.

In the current research, a meta-analysis was conducted to aggregate these and additional correlations depicting the relationship between "healthy" and "unhealthy" competitiveness. Based on a sample of 16 effect sizes (N = 2,951), the meta-analytic correlation is .23 (SD = .18), and the meta-analytic correlation corrected for unreliability in "healthy" and "unhealthy" competitiveness is .28 (SD = .19; 95% CI [.18, .38]; 80% CV [.04, .52]). These results indicate that a moderate[1] relationship exists between "healthy" and "unhealthy" competitiveness, suggesting that they may covary to some extent but ultimately constitute separate constructs.

Additional evidence that healthy and unhealthy forms of competitiveness should be considered distinct can be seen in their separate locations in the nomological network. Unhealthy competitiveness is negatively related to forgiveness of others (r = -.35, p <.001, N = 161; Collier et al., 2010) as well as ethical judgements (r = -.24, p <.001, N = 263) and intentions (r = -.32, p

[1] According to Cohen's (1992) effect size benchmarks.

< .001, N = 263; Mudrack et al., 2012), and it positively predicts neuroticism (r = .31, p <.001, N = 126; Ross, Stewart, Mugge, & Fultz, 2001). In contrast, healthy competitiveness is unrelated to these constructs. Also, healthy competitiveness negatively predicts psychopathy (standardized β = -.36, p < .001, N = 162), whereas unhealthy competitiveness positively predicts psychopathy (standardized β = .47, p < .001, N = 162; Ross & Rausch, 2001).

In summary, so-called "healthy competitiveness" (i.e., PDC [Ryckman et al., 1996], goal competitiveness [Griffin-Pierson, 1990], and the "goal" subscale of the SOQ [Gill & Deeter, 1988]) differ from "unhealthy competitiveness" (i.e., competitiveness focused on winning). Under this distinction, the current research could be said to be focusing on *unhealthy competitiveness*, or competitive personality as a drive to win and outperform others. Nonetheless, I am quick to note that the definition of a personality construct should be distinguished from whether that construct is considered adaptive or "healthy." As such, I do not necessarily consider winning-oriented competitiveness to be "unhealthy." The adaptiveness of a personality trait is an empirical question, and should not be subsumed within the definition of the trait itself.

Defining Competitive Personality

To summarize, the current research defines competitive personality as the *desire to win against others*. This definition implies three core elements. First, "desire" implies an emotional or motivational element. Second "win" implies goal attainment. Third, "against others" implies status, social comparisons, and social referents. Together, these three elements compose the concept of competitiveness as an aspect of personality.

Origins of Competitive Personality Research

Four literatures have informed the study of competitive personality, each originating and developing in its own context. These four streams of competitive personality research history—

health psychology, psychology of gender, cross-cultural psychology, and psychoanalysis—are detailed below.

Health Psychology

It all started when two cardiologists hired an upholsterer to fix their waiting room chairs. The upholsterer commented with interest that only the front ends of the seats were worn out—ostensibly because the patients that occupied them tended to sit on the edges of their seats—and the cardiologists, Friedman and Rosenman, became inspired to launch a line of research investigating behavior patterns of their coronary patients (Friedman & Rosenman, 1974). To explain competitive personality as studied in the health psychology tradition, I will describe (a) key definitions, (b) health risks, (c) a brief history of measurement instruments, and (d) organizational research.

Friedman and Rosenman (1959) began by defining key aspects of *Type A behavior pattern*: "Men of group A exhibited a behavior pattern primarily characterized by intense ambition, competitive 'drive,' constant preoccupation with occupational 'deadlines,' and a sense of time urgency“ (p.1295). They went on to find that men who demonstrated the Type A behavior pattern had a higher incidence of coronary disease (Friedman & Rosenman, 1959). Zyzanski and Jenkins (1970) expanded on the definition of Type A behavior, stating that hallmarks of this pattern included “extremes of competitiveness, striving for achievement, aggressiveness (although sometimes stringently repressed), haste, impatience, restlessness, hyperalertness, explosiveness of speech, tenseness of facial musculature, and feelings of being under the pressure of time and challenge of responsibility” (p.781). Further development of the Type A behavior profile occurred via a series of empirical studies that evaluated which

personality variables best predicted coronary heart disease (Rosenman & Friedman, 1961; Rosenman et al., 1964; Rosenman et al., 1975).

Friedman and Rosenman (1974) noted that Type A behavior pattern does not suffer the same stigma as other psychological disorders; in fact, Type A individuals are often praised for being high achievers. Nevertheless, because of its link with heart disease, Type A behavior pattern is typically classified as maladaptive (i.e., Friedman & Rosenman, 1974; Glass, 1977). Seeing a risk to be mitigated, Friedman and Rosenman (1974) provided a number of suggestions to target and reduce Type A behaviors (i.e., "Tell yourself at least once a day that no enterprise ever failed because it was executed too slowly, too well" [p. 323], and "Begin to speak your thanks or appreciation to others when they have performed services for you" [p. 236]). Glass (1977) then extended understanding of Type A behaviors and their associated problems in two important ways. First, he proposed three component parts of Type A behavior pattern—*achievement striving*, *time urgency*, and *aggressiveness*—better allowing researchers to target interventions toward specific behaviors. Second, he emphasized the importance of environment in understanding Type A behavior pattern as an individual difference; to this end, Glass (1977) summarized empirical findings to date regarding the role of stress in activating and exacerbating Type A behavior. Ultimately, the classification of Type A behavior pattern as a negative influence on health spurred another key area of research: measuring Type A behavior.

In order to treat Type A individuals, researchers required an effective way to identify them. Type A behavior pattern was originally measured via a structured interview (Rosenman et al., 1964), but later researchers (i.e., Jenkins, Rosenman, & Friedman, 1967; Jenkins, Zyzanski, & Rosenman, 1979; Zyzanski & Jenkins, 1970) developed an more standard measure of Type A

behavior pattern, which included several subscales to tap into specific aspects of Type A, such as impatience and competitiveness. Additional details of this measure are discussed later.

Because of its roots in coronary disease research, Type A behavior pattern did not immediately appear in published studies as an individual difference variable. Then, several annual reviews about health psychology and personality (i.e., Carson, 1989; Rodin & Salovey, 1989) identified Type A behavior pattern as a dispositional variable that influences health, paving the way for future research studies to include Type A behavior pattern or its component facets as personality correlates and antecedents. Subsequently, the relationship between Type A behavior and stress at work became a well-studied application of Type A behavior in organizational research. Empirical findings suggest a positive relationship exists between Type A and job stress (r = .11, p < .05, N = 336; Rhodewalt, Sansone, Hill, Chemers, & Wysocki, 1991) as well as role conflict—that is, feeling a task entails conflicting demands (r = .30, p <.01, N = 90; Orpen, 2010). Furthermore, Billing and Steverson (2013) found that Type A moderated the relationship between job stress and job satisfaction, such that the relationship was weaker in those classified as Type A than in those classified as Type B [2] (β = -.24, p < .001, N = 282).

Psychology of Gender

Spence and Helmreich (1978) followed Bem (1974) in asserting that masculinity and femininity constitute independent constructs rather than opposite ends of a single bipolar continuum. They then produced a unique contribution to the psychology of gender by developing the Personal Attributes Questionnaire (PAQ) to measure masculinity and femininity as personality variables (i.e., distinct from sex, gender, and sex roles). After noting that certain attributes in the PAQ contain a motivational component (e.g., competitive, dominant, active),

[2] In contrast to Type A individuals, those classified as Type B tend to feel relaxed, rarely behave in a hostile manner, and experience little time urgency (Friedman & Rosenman, 1974).

Spence and Helmreich (1978) developed the Work and Family Orientation Questionnaire (WOFO) to measure sex differences in achievement needs. Spence and Helmreich (1983) defined achievement motivation as, "task-oriented behavior that allows the individual's performance to be evaluated according to some internally or externally imposed criterion, that involves the individual in competing with others, or that otherwise involves some standard of excellence" (p.12), and specified that achievement motivation constitutes a type of intrinsic motivation (as opposed to extrinsic motivation). Four facets of achievement motivation were conceptualized and measured by the WOFO (see Spence & Helmreich, 1978). First, *mastery* reflects a desire for challenging tasks and a drive to achieve self-set goals. Second, *work orientation* reflects the desire to work hard and complete tasks well. Third, *personal unconcern* reflects lack of concern for negative reactions from others. Finally, *competitiveness* reflects the desire to perform better than others. The *competitiveness* facet is of interest in the current research.

Cross-Cultural Psychology

Individualism and collectivism constitute landmark terms in culture research (Hofstede, 1980), but Triandis (1995) contended that these terms were used broadly and imprecisely, and that specific terminology and a comprehensive framework were imperative to the continued study of culture. In order to address this issue, Triandis (1995) conceptualized the *horizontal* and *vertical* individualism and collectivism framework, citing Daun (1991, 1992) as well as unpublished work by Chen, Meindl, and Hunt as influences in developing this conceptualization. Triandis (1995) believed that by adding the horizontal-vertical dimension, which reflects being similar to—versus different from—others, to the existing individualism-collectivism dimension, which reflects being independent from versus interdependent with others, researchers could

better capture the nuances of culture. Because this framework for understanding culture includes two distinctions (horizontal-vertical; individualist-collectivist), it was used to form four constructs that capture cultural differences among individuals: *horizontal individualism, horizontal collectivism, vertical collectivism,* and *vertical individualism.* Horizontal individualism reflects the desire to stand out and be different from others, but not the desire to acquire status above others. Horizontal collectivism reflects the propensity to see oneself as similar to others and perceive interdependence among persons, but not the propensity to submit to authority. Vertical collectivism reflects identification with of one's in-group and the willingness to sacrifice for the good of the group if needed. Finally, relevant to the current research on competitiveness, vertical individualism emphasizes achievement and being the best, with those high in vertical individualism readily accepting inequality as a social state and believing rank entails privilege. Figure 4 provides a brief overview of the horizontal-vertical individualism-collectivism framework.

Psychoanalytic Influences

Horney (1937) discussed general "neurosis" as the foundation of competitive personality, with neurosis serving the dual purposes of (a) obtaining reassurance against anxiety, and (b) releasing pent-up hostility. She also conceptualized normal versus excessive levels of competitiveness as two distinct categories, specifying that a person who is excessively competitive (a) draws comparisons between the self and others, even in non-competitive environments; (b) strives not just to be better than others, but to be the best; and (c) demonstrates inherent hostility toward others, with a desire to best others either by elevating the self or forcing others down beneath the self.

Ryckman, Hammer, Kaczor, and Gold (1990) later defined the construct of hypercompetitiveness based on Horney's (1937) differentiation between normal and excessive "types" of competitiveness. Thus, hypercometitiveness emerged as a construct to reflect excessive competititveness. Ryckman, Thornton, and Butler (1994) then studied the nomological network of hypercompetitiveness[3] and found correlations with narcissism (r = .34), experience seeking (r = -.23), disinhibition (r = .28), boredom susceptibility (r = .29), role overload and conflict (r = .31), and Machiavellianism (r = .26; all p <.01, N = 160).

How has Competitive Personality been Measured?

Competitive personality has its origins in four literatures, each of which spawned its own measures. Furthermore, some of these measures informed each other. For instance, the Jenkins Activity Survey and Work and Family Orientation Questionnaire provided the conceptual foundation for Smither and Houston's (1992) Competitiveness Index. Figure 1, a timeline of competitive personality measurement, depicts key citations in the development of the nine main measures[4], as well as how these measures influenced each other. The histories of the nine measures are explained in detail below and summarized briefly in Table 1. In addition, Figure 2 provides a rough estimate of the popularity of each of the nine measures (i.e., how many times each measure has been cited according to Google Scholar). Items that form each of the measures[5] appear in Appendix A.

[3] Note that these are partial correlations, controlling for social desirability.

[4] One committee member suggested looking at the California Psychological Inventory "dominance" scale as an additional measure of competitive personality. According to McAllister (1996) the dominance scale of the CPI measures leadership ability, dominance, persistence, and social initiative; therefore, although the CPI dominance scale may be correlated with the aforementioned nine competitive personality measures, it would not be considered a measure of competitive personality.

[5] Excluding the HPI, for which the full list of items is proprietary.

Jenkins Activity Survey (JAS)

Jenkins, Friedman, and Rosenman (1965) created the first standard test version (i.e., not the traditional structured interview version [Rosenman et al., 1964]) of the Jenkins Activity Survey (JAS), to measure Type A behavior pattern. The test questions referred to behaviors and attitudes constituting the coronary-prone behavior pattern identified by Friedman and Rosenman (1959). For example, the item "*How often do you actually 'put words in [a] person's mouth' in order to speed things up?*" was included to measure time urgency. Jenkins et al. (1965) collected data by administering the JAS in the Western Collaborative Group Study (WCGS; all male sample, N = ~3000). Subsequently, Jenkins, Rosenman, and Friedman (1967) used WCGS sample data to analyze which items from the JAS accurately discriminated between Type A versus Type B respondents. The resulting questionnaire, eventually published as a test manual by Jenkins, Zyzanski, and Rosenman (1979) contained 52 multiple choice items.

The JAS was originally constructed to measure Type A behavior as a unidimensional construct, but when Zyzanski and Jenkins (1970) conducted factor analyses (on 2 samples from the WCGS) on the items found to discriminate between Type A and Type B respondents, they repeatedly found three factors: *hard-driving*, *job involvement*, and *speed and impatience* (see Figure 3). Several years later, Waldron, Zyzanski, Shekelle, Jenkins, and Tannebaum (1977) replicated the three-factor structure of the JAS in a new sample including women as well as men, strengthening the argument that Type A behavior pattern is best considered as a multi-faceted construct. Bengly and Boyd (1985) later used exploratory factor analysis to produce a five-factor structure for the JAS, contrary to the traditional three-factor structure. In addition to the existing three factors, this five-factor model included two new factors: *comparisons with the average worker* and *eats too fast*. However, subsequent studies administering the JAS typically scored the

survey responses based on the three-factor model as opposed to the five-factor model (e.g., Becker & Suls, 1982; Evans & Coman, 1993; Iwata, Suzuki, Saito, & Abe, 1992), indicating that the five-factor model failed to gain traction among Type A behavior researchers.

Although the JAS became a popular measure of Type A behavior pattern, criticisms of the measure soon emerged. Bengly and Boyd (1985) pointed out key weaknesses of the JAS, most notably its scoring system, which post-hoc recoded response options to "1" [versus "0"] in the way that maximized the item-total correlation. For example, the question "When you were younger, did most people consider you to be: (A) Definitely hard-driving and competitive, (B) Probably hard-driving and competitive, (C) Probably more relaxed and easy going, or (D) Definitely more relaxed and easy going" would be scored as follows: answer choice (A) would be scored as "1," and answer choices (B), (C), and (D) would be scored as "0." As an alternative to this problematic scoring system, Bengly and Boyd (1985) proposed a new scoring scheme that rank-ordered response options. In the example above, the response options would now be rank-ordered as follows (from *most* to *least* Type A): (A), (B), (C), (D). Boyd and Bengly (1987) recommended further revisions to the JAS, suggesting that the discriminant analysis-based weighting system should be replaced with an unweighted unit scoring system, effectively transforming the JAS from a multiple-choice test into a Likert scale measure (which increased reliability coefficients for each subscale).

Vertical Individualism (VI)

In his effort to help researchers depict the concept of culture more specifically, Triandis (1995) proposed adding a horizontal-vertical dimension to the traditional individualism-collectivism dichotomy to form four scales: *horizontal individualism*, *vertical individualism*, *horizontal collectivism*, and *vertical collectivism* (see Figure 4).

Subsequently, Singelis, Triandis, Bhawuk, and Gelfand (1995) presented a shorter, validated version of Triandis's (1995) measure, with eight items in each of the four scales. To demonstrate that differentiating between horizontal and vertical individualism and collectivism is the most appropriate way to measure culture, Singelis et al. (1995) performed factor analysis and found that a four-factor model (i.e., separate factors for HI, VI, HC, and VC) showed better fit (χ^2 = 898.88, AGFI[6] = .79, RMR[7] = .089) than a two-factor model (i.e., with separate factors for individualism and collectivism; χ^2 = 1066.32, AGFI = .69, RMR = .097) or one-factor model (χ^2 = 1276.01, AGFI = .63, RMR = .112). Triandis and Gelfand (1998) provided additional validity evidence for horizontal and vertical individualism and collectivism. First, they used a multi-trait multi-method matrix to demonstrate convergent validity of the four scales, finding that horizontal and vertical individualism and collectivism showed high monotrait-heteromethod correlations (i.e., when vertical individualism was measured using Triandis's items as well as a scenario questionnaire developed in the 1998 study, the correlation between the measures was a moderately high .51). Second, they provided additional construct validity evidence for the four scales by examining correlations with other relevant measures (interdependent vs. independent construal, right-wing authoritarianism, etc.). Notably, vertical individualism correlated negatively with the Communal Orientation Scale (Clark, Ouellette, Powell, & Milberg, 1987; r = -.29, $p < .005$, N = 90).

[6] The Adjusted Goodness of Fit Index (AGFI) compares a given model to the observed covariance matrix; values above .9 are considered good.

[7] To calculate the Root Mean Square Residual (RMR), take the square root of the discrepancy between the observed covariance matrix and the model covariance matrix; values less than .08 are considered good. Unlike its better-known counterpart the Standardized Root Mean Square Residual (SRMR), the RMR is not ideal for use when the model contains variables measured on different scales (e.g., one variable is measured on a 1-5 scale and another is measured on a 1-3 scale); in this study, H-I, H-C, V-I, and V-C were all measured on the same scale, making it admissible to use RMR.

Triandis's horizontal and vertical individualism and collectivism scales also demonstrate external validity. Triandis and Gelfand (1998) used factor analysis to show that the four-factor solution can be found in both an individualist culture (i.e., the United States) and a collectivist culture (i.e., Korea). Additionally, Chiou (2001) provided evidence for the measurement equivalence of the horizontal and vertical individualism and collectivism scales across countries (the United States, Argentina, and Taiwan).

Hypercompetitive Attitude Survey (HCAS)

Ryckman et al. (1990) created the Hypercompetitive Attitude Scale based on the definition of hypercompetitiveness described by Horney (1937). The scale consists of 26 items (13 reverse-scored) answered on a 5-point Likert scale. Ryckman et al. (1990) conducted a series of studies to establish the reliability and nomological validity of the HCAS. They found that the HCAS demonstrated good test-retest reliability ($r = .81$, $p < .001$, $N = 99$) and correlated with the Win-at-any-Cost Sports Competition Scale (Lakie, 1964; $r = .24$, $p < .05$, $N = 68$), the Rosenberg Self-Esteem Scale (Rosenberg, 1965; $r = .30$, $p < .05$, $N = 45$), and a Neuroticism Scale (Eysenck Personality Questionnaire; Eysenck & Eysenck, 1975; $r = .41$, $p < .01$, $N = 50$; $r = .50$, $p < .001$, $N = 50$).

Work and Family Orientation Questionnaire (WOFO)

Spence and Helmreich (1978) created the Work and Family Orientation Questionnaire (WOFO-1) and a revised edition (WOFO-2)[8] to measure differences in achievement motivation between males and females. As determined by factor analysis, the original instrument (i.e., the

[8] Helmreich and Spence (1978) also published a standalone version of the WOFO (which Spence and Helmreich [1978] refer to as the WOFO-3), creating a somewhat confusing situation wherein some authors using the measure cite Helmreich and Spence (1978), whereas others cite Spence and Helmreich (1978). It is worth noting that the Helmreich and Spence (1978) version of the WOFO includes *five* items measuring competitiveness, whereas the Spence and Helmreich (1978) version includes only *four* items (see Appendix A).

WOFO-1) included 6 factors: *mastery, job concerns, spouse career aspirations, effort, competitiveness,* and *work orientation*. However, Spence and Helmreich (1978) noted that this factor structure was obtained from an all-male sample, and did not replicate in an all-female sample. Additional shortcomings of the WOFO-1 included poor performance measuring the *competitiveness* factor, and wording specific to an adolescent population. To address these shortcomings, Spence and Helmreich (1978) created and factor analyzed a revised version of the measure (i.e., the WOFO-2). They determined that this version contained four factors: *work*, *mastery*, *competitiveness,* and *personal unconcern* (see Figure 5). The WOFO-2 consists of 14 items scored on a 5-point Likert scale with anchors "strongly disagree" to "strongly agree." Brown, Cron, and Slocum (1998) later popularized a four-item shortened version of the WOFO-2 including only items from the *competitiveness* subscale; some researchers cite this measure in place of the WOFO (e.g., Karatepe & Olugbade, 2009; Plouffe, Nelson & Beuk, 2013; Schrock, Hughes, Fu, Richards, & Jones, 2014).

Competitiveness Index and Competitiveness Index-Revised (CI & CI-R)

Smither and Houston (1992) created the Competitiveness Index to measure competitiveness, which the authors described as a construct arising from four areas of psychology: achievement motivation, sports psychology, experimental social psychology, and personality assessment. The measure consisted of 20 true or false items. Smither and Houston (1992) also analyzed convergent validity of the measure with the SOQ ($r = .61$, $p < .01$, $N = 215$) and WOFO competitiveness subscale ($r = .47$, $p < .01$, $N = 215$).

Subsequently, Houston, Harris, McIntire, and Francis (2002a) made two key modifications to the Competitiveness Index to create the Competitiveness Index-Revised. First, Houston et al. (2002a) converted the response format from a true-false scale to a 5-point Likert

scale. Second, 6 items were dropped from the original 20-item scale, and 2 subscales were identified: *enjoyment of competition* and "*contentiousness*." The revised scale demonstrated higher correlations with the SOQ ($r = .62$, $p < .001$, $N = 213$) and WOFO competitiveness subscale ($r = .55$, $p < .001$, $N = 213$) than did the original version.

Sport Orientation Questionnaire (SOQ)

Although Gill (1986) did not use the name "Sport Orientation Questionnaire," her 1986 paper constitutes the first published use of the 3 subscales (*competitiveness, goal, win*) and component items that would later become the SOQ. Two years later, Gill and Deeter (1988) dropped two items from the *win* subscale, then named Gill's (1986) instrument the Sport Orientation Questionnaire (SOQ): a three-dimensional measure of individual differences in sport achievement orientation. Gill and Deeter (1988) cited Spence and Helmreich (1978) and Helmreich and Spence (1978) as key influences on the field of measuring achievement motivation and more specifically competition, but asserted that the WOFO does not relate specifically enough to sports, justifying the need for a new scale (i.e., the SOQ). Finally, Gill, Dzewaltowski and Deeter (1988) validated the SOQ in high school and university samples, finding that the SOQ outperformed the WOFO in its ability to differentiate between competitive sport participants versus competitive sport non-participants.

Competitiveness Questionnaire (CQ)

Griffin-Pierson (1990) created the Competitiveness Questionnaire to distinguish goal competitiveness from interpersonal competitiveness. Griffin-Pierson (1990) cited Helmreich and Spence (1978) as a key influence in defining and measuring interpersonal competitiveness, but made a novel contribution by defining and generating an instrument to measure goal competitiveness.

Motivational Traits Questionnaire (MTQ)

Kanfer and Heggestad (1997) conceptually differentiated between motivational traits (individual differences in goal-directed behavior) and motivational skills (competencies used in goal-directed behavior). The authors used Snow, Corno, and Jackson's (1996) trait construct clustering approach to search across literature and generate two overarching motivational trait categories: Achievement (approach-based motivational traits) and Anxiety (avoidance-based motivational traits). Heggestad and Kanfer (2000) then created and validated the Motivational Traits Questionnaire, which measures three Achievement traits (*personal mastery*, *competitive excellence*, and *hard work*) and two Anxiety traits (*failure avoidance* and *achievement anxiety*). Each trait contains several subscales. Relevant to the current study is the *competitive excellence* trait, with two subscales: *other-referent goals* and *competition-seeking* (see Figure 6). A short form of the MTQ was created by Kanfer and Ackerman (2000)—the original instrument was 183 items with 9 scales, and the short form was 48 items with 6 scales.

Hogan Personality Inventory (HPI)

Hogan (1982) was also inspired by neo-Freudians, but unlike Horney (1937) and Ryckman et al. (1990), who focused on neuroticism and dysfunction as the underpinnings of personality, Hogan (1982) went in the opposite direction by focusing on developing a theory of normal personality. Furthermore, Hogan (1982) asserted that because humans have evolved in groups and still function largely in social hierarchies today, personality should be conceptualized in terms of an actor's social behavior and how it is interpreted by an observer, an idea he termed *the socioanalytic theory*. This theory defines personality as individual differences in interpersonal effectiveness, with two broad strategies identified: "getting along" and "getting ahead." Hogan went on to create the Hogan Personality Inventory (HPI), an instrument designed

to assess 7 facets of normal personality: *Adjustment, Ambition, Sociability, Interpersonal Sensitivity, Prudence, Inquisitive,* and *Learning Approach* (Hogan & Hogan, 2007[9]). The HPI ultimately became a centerpiece of Robert and Joyce Hogan's personality assessment company Hogan Assessment Systems, founded in 1987. Relevant to the current research is the *Ambition* subscale, which reflects how energetic, competitive, and forceful a person is.

Multi-Dimensionality in Competitive Personality Measurement

Should competitive personality be considered a unidimensional construct? To answer this question, Houston, McIntire, Kinnie, and Terry (2002b) conducted principal axis factor analyses with varimax rotation (exploratory factor analysis) on relevant subscales from a number of existing competitiveness measures (e.g., CI, CQ, HCAS, WOFO, SOQ, personal development competitiveness). Houston et al. (2002b) found support for a two-factor solution (*Self-Aggrandizement* and *Interpersonal Success*). It is worth noting, however, that this study used entire scales (i.e., aggregate scores) rather than individual items as the input for the factor analysis.

Subsequently, Newby and Klein (2014) created a new scale (the Competitiveness Orientation Measure; COM) using items from existing measures (the same ones Houston et al. [2002b] used). Confirmatory factor analysis provided modest support for a model with four competitiveness factors (Comparative Fit Index [CFI] = .835, Root Mean Square Error of Approximation [RMSEA] = .083; Newby and Klein, 2014). Those four factors are as follows: *general competitiveness* ("I am a competitive person"), *affective competitiveness* ("I don't care if other people are better at things than I am" [R]), *dominance* ("I like to be better than others at

[9] Note that this citation marks the current (3rd) edition of the HPI manual, which recounts the measure's history. No published research exists to mark the HPI's creation, but based on Hogan and Hogan's (2007) description, the HPI was first administered for validation in the mid 1970's.

almost everything"), and *personal enhancement* ("Competition allows me to judge my level of competence"). However, Harris, Newby, and Klein (2013) found large correlations ranging from $r = .54$ to $r = .75$ among the four factors, casting uncertainty on the true degree of multi-dimensionality in competitive personality.

Nomological Network of Competitive Personality

A richer understanding of competitive personality can be gained by mapping its relationships with correlates and outcomes. Which variables relate strongly to competitive personality? Are these associations positive or negative? A nomological network supports construct validity by depicting a new construct's relationships with measures of existing, theoretically relevant constructs (Cronbach & Meehl, 1955; Edwards, 2003; Hinkin, 1998; Shadish, Cook, & Campbell, 2003). Because competitive personality represents the *desire* to win, it can be thought of as a type of approach motivation (Gray, 1982; Harmon-Jones, Harmon-Jones, & Price, 2013). Furthermore, competitive personality entails focus on winning *against others*, which amounts to an actor's drive to obtain rank above another, whether this is an objectively quantifiable rank (e.g., a higher performance score) or a subjectively experienced rank (e.g., a feeling of superiority). Therefore, competitive personality can be theoretically situated within a nomological network wherein it relates (a) positively to constructs involving agency, dominance, achievement, and "dark" aspects of personality and behavior and (b) negatively to constructs involving communion, sociability, cooperation, and yielding. My expected depiction of competitive personality's nomological network can be found in Figure 7. Correlates and outcomes composing the nomological network, including existing empirical research, are discussed below.

Personality Correlates

Big Five personality. As a staple of personality research, the Big Five has often been studied in conjunction with competitiveness, with results indicating competitiveness relates positively to conscientiousness (Brown, Cron, & Slocum, 1998; Exline & Zell, 2012) and negatively to agreeableness (Chen, Fok, Bond, & Matsumoto, 2006; Ross, Stewart, Mugge, & Fultz, 2001). Fletcher and Nusbaum (2008) took a more fine-grained approach to studying associations between competitiveness and the Big Five. Considering trait competitiveness as a composite variable composed of two indicators (i.e., HCAS and WOFO), they used structural equation modeling to identify relationships between the 30 facets of the Big Five identified in the NEO-PI-R (Costa & McCrae, 1992) measured via the International Personality Item Pool (IPIP; Goldberg et al., 2006) and trait competitiveness. Nine facets (six from Extraversion and three from Agreeableness) were statistically significantly related to trait competitiveness: excitement-seeking, assertiveness, friendliness, cheerfulness, gregariousness, activity level, morality/straightforwardness, modesty, and sympathy/tender-mindedness. The Agreeableness facets were all negatively related to competitiveness, whereas the Extraversion facets were mixed, with the affiliation facets relating negatively to competitiveness and the surgency facets relating positively to competitiveness. In summary, evidence suggests that highly competitive individuals are likely to be conscientious, and assertive (in terms of extraversion); and unlikely to be agreeable, or friendly (in terms of extraversion). This is consistent with the theoretical concept of competitive personality developed in the current paper, which depicts it as a variable associating positively with agency, dominance, and achievement, but negatively with sociability.

Dark Triad. The Big Five facets reflect positive aspects of personality, but competitiveness also seems to coincide with darker aspects of personality. Carter, Montanaro,

Linney, and Campbell (2015) studied relationships between competitiveness and Dark Triad traits in women, and found that competitiveness (measured via the HCAS) related strongly to psychopathy (r = .50), narcissism (r = .62), and Machiavellianism (r = .55; all $p < .01$, N = 493). These results echo those of Le (2005), who found a relationship of similar magnitude between narcissism and competitiveness measured via the VI scale (r = .43, $p < .001$, N = 179). Those high in competitive personality possess a strong desire to outrank and outperform others. As such, one way to win is for others to lose—which leads competitive individuals to sometimes possess hostility toward others and a desire to best others, even if it means forcing others down beneath the self (Horney, 1937). I expect this competitive desire to associate with darker aspects of personality. Specifically, individuals more driven to beat others may be more self-centered, manipulative, and opportunistically antisocial; because these behavior patterns can serve as tools to facilitate winning.

Core self-evaluations. Finally, core self-evaluations (i.e., Neuroticism, self-esteem, general self-efficacy, and locus of control) constitute the way individuals view and evaluate themselves (Judge, Locke, Durham, & Kluger, 1998). Because competitive personality involves comparisons with others as well as the attainment of performance goals, it may relate to the traits that make up core self-evaluations. Indeed, Ackerman and Ackerman (1989) found that competitiveness (measured via the WOFO) related to internal locus of control (r = .17, $p < .05$, N = 113), suggesting individuals prone to viewing themselves as in control of their environments (internal locus) also tend to be more competitive. Evidence regarding self-esteem is less consistent, though, with some researchers finding negative associations between self-esteem and competitiveness (e.g., Watson, Morris, and Miller [2001] found a correlation of -.12 between competitiveness measured via the HCAS and self-esteem [$p < .05$, N = 380]) and others finding

positive associations (e.g., Madzar [2005] found a correlation of .14 between competitiveness measured via the VI scale and self-esteem in an organizational setting [$p < .01$, $N = 2{,}213$]). This could be evidence of a moderator in the relationship between self-esteem and competitiveness. Further, individuals with high self-evaluations may be more likely to enter into competitions, due to the heighted likelihood of winning. Because I have placed competitive personality close to agency and achievement in a theoretical network of constructs, I assert that evaluations of self-efficacy, self-esteem, and internal locus of control are likely to positively associate with it (note that I do not anticipate a relationship between competitive personality and Neuroticism—see section on Big Five personality above). Individuals higher in these traits that make up core self-evaluations are better equipped to tackle challenges and persist in overcoming them, and individuals higher in competitive personality are equipped with a drive to overcome challenges involving others.

Social desirability. Crowne and Marlow (1960) define social desirability as a need "to obtain approval by responding in a culturally appropriate and acceptable manner" (p.353). Although it can be thought of as a mere obstacle to acquiring self-report data (about personality, psychopathology, etc.), social desirability can also be studied as an individual difference. Thus, I expect social desirability to associate with competitive personality, because those high in social desirability possess stronger motivation to appear more acceptable or correct by cultural standards. In this way, social desirability can be reflect the drive to feel superior to others.

Masculinity and femininity. Spence and Helmreich's (1978) approach to studying and measuring masculinity and femininity entails at least two key ideas: First, masculinity and femininity are not opposite ends of a single spectrum, but rather two distinct spectrums existing in both men and women (i.e., the dualistic view of masculinity-femininity). Second, the core

properties of masculinity focus on agency, whereas the core properties of femininity focus on communion. As such, I expect that individuals higher in competitive personality will also be higher in masculinity (agency), but that individuals higher in competitive personality will be lower in femininity (communion).

Demographic Correlates

Personal demographics. Less research has directly examined relationships between competitiveness and personal demographics, such as age or gender. Martin, Eklund, and Smith (1994) studied factors influencing the competitiveness of distance runners, and found that age correlated negatively with competitiveness measured by the SOQ (r = -.44, p <.001, N = 80). These findings suggest that younger individuals may be more competitive; however, Martin et al.'s (1994) highly specialized sample (i.e., distance runners) may not be representative of the population at large. Considering the relationship between age and personality in a more generalizable set of samples, I note that a meta-analysis from Roberts, Walton, and Viechtbauer (2006) indicates agreeableness tends to increase with age, suggesting that older individuals demonstrate more cooperative and sociable behavior. Because the nomological network within which I have theoretically situated competitive personality includes negative relationships with these behaviors, I expect that age and competitive personality will also be negatively related.

Spence and Helmreich (1978) conducted a line of research to uncover gender-based differences in achievement motivation, as this was the WOFO's original purpose. Initial analyses of the WOFO-1 produced different achievement motivation factor structures for men versus women. Spence and Helmreich (1978) determined that when only participants who aspire to receive a college degree or beyond are included in analysis, male and female participant groups produce very similar factor structures. As for mean differences between men and women on the

WOFO competitiveness subscale, Spence and Helmreich (1978) found that men reported being more competitive than women (based on ANOVA results, although no means or effect sizes were reported; $p < .05$; p.91) when using the WOFO-1 scale, and Olds and Shaver (1980) obtained similar results using a new sample and the WOFO-2 ($M_{males} = 16.70$, $M_{females} = 15.38$, $p < .001$; no effect sizes or standard deviations reported). Because Spence and Helmreich (1978) found that men scored higher on the aggressiveness and dominance items of the PAQ, I expect that men will also be higher than women, on average, in competitive personality.

Organizational demographics. Variables such as workload or organizational tenure may also relate to competitiveness. Iwata, Suzuki, Saito, and Abe (1992) found that for male bank employees, number of hours worked per week related positively to competitiveness (measured via the JAS) for employees in manager positions (i.e., chief clerks or higher; $r = .27$, $p < .05$, $N = 61$) but not for subordinates (i.e., clerks; $r = .01$, *n.s.*, $N = 97$). This indicates that more competitive employees tend to work more hours per week, but only if they are employed in higher-level positions. In addition, Fletcher et al. (2008) found that competitiveness (measured via the WOFO) related negatively to tenure ($r = -.14$, $p < .05$, $N = 274\text{-}916$), suggesting that newer employees tend to be more competitive.

Individuals higher in competitiveness may be more likely to seek out and persist in hard work due to their higher drive to best others. Because of its theoretical connection with achievement, competitive personality may coincide with work hours; employees higher in competitive personality may be willing to work more hours in an effort to outperform others. However, due to the overlap between job tenure and age, I expect competitiveness will be negatively related to job tenure.

Job Attitude Outcomes

Job satisfaction. Being one of the most ubiquitous variables in organizational research, job satisfaction could be a critical outcome of competitive personality. Jamal and Baba (2003) found that job satisfaction was negatively associated with competitiveness (measured via the JAS) across industries, in both a telecommunications sample (r = -.29, p <.01, N = 110) as well as a sample of hospital employees (r = -.37, p < .01, N = 175). Robert (1998) took a different approach to measuring job satisfaction; instead of studying the broad, overall attitude, he used the Job Descriptive Index to separate job satisfaction into a number of facets, including satisfaction with coworkers, satisfaction with supervisor, and satisfaction with the work itself (Smith, Kendall, & Hulin, 1969). Furthermore, Robert (1998) studied samples from four different countries: the U.S., Mexico, India, and Poland. His findings suggest that, across countries, these specific facets of job satisfaction are not predicted by competitiveness (measured via the VI scale). Overall, existing research indicates that the level of abstraction at which job satisfaction is measured plays an important part in its observed relationship with competitive personality; although less competitive people report higher job satisfaction in a general sense, when asked about their satisfaction with specific aspects of the job, they do not report more or less satisfaction than more competitive people. Because competitive individuals experience a stronger drive to outrank others, they may be more motivated to report high levels of job satisfaction in order to feel superior to others; or they may experience higher job satisfaction as a byproduct of high work performance. Therefore, I expect competitive personality to be positively associated with job satisfaction.

Employee engagement. Competitive personality may also impact employee engagement. In fact, findings from Karatepe and Olugbade (2009) indicate that competitiveness (measured via

the WOFO) relates to all three factors of work engagement: vigor (r = .25, p < .01), dedication (r = .18, p < .05), and absorption (r = .28, p < .01, all N = 130). This implies that more competitive individuals are typically more engaged at work, as they report feeling more energized, inspired, and immersed while on the job. I expect more competitive individuals to be harder working and more engaged at work.

Turnover intentions. Mitchell, Holtom, Lee, Sablynski, and Erez (2001) suggest that employees who are more embedded in their jobs (i.e., more linked to the organization and its employees and less inclined to break those links) are less likely to leave their organizations. Competitive personality, dominance, and achievement coincide in a theoretical network, implying that more competitive employees devote a considerable amount of time and effort to their jobs, and are more likely to persist in those jobs; therefore, they are less likely to report turnover intentions.

Positive and negative affectivity. Competitive personality constitutes an urge to win, which may produce both positive and negative emotions. Independence of the positive and negative emotional dimensions forms a critical aspect of Watson, Clark, and Tellegen's (1988) PANAS framework of affect/mood. That is, an individual high in *positive affectivity* (i.e., predisposed to feeling positive emotions such as enthusiasm or excitement) will not necessarily be low in *negative affectivity* (i.e., predisposed to feeling negative emotions such as guilt or fear). Because competitive personality entails a desire to win against others, it may lead to both positive affect (as a result of winning or a motivator toward achievement) and negative affect (as a result or comparing the self to others and considering the possibility of being outperformed by them). Therefore, I expect that more competitive individuals will be predisposed toward both higher positive affectivity *and* higher negative affectivity.

Work Behavior Outcomes

Counterproductive work behavior. Given the associations between Dark Triad traits and competitive personality, it is somewhat expected that competitiveness would predict counterproductive work behavior (CWB). Smithikrai (2014) found that competitive personality (measured via the VI scale) positively predicted CWB (r = .25, p < .05, N = 440). In addition, Diefendorff and Mehta (2007) found that competitive personality (measured via the MTQ) predicted both interpersonal CWB (r = .20, p < .01, N = 392) and organizational CWB (r = .13, p < .05, N = 392). Competitive personality apparently relates both to dark personality traits and negative work behaviors. Just as Dark Triad personality traits may constitute tools used more often by more competitive individuals to beat out others, CWB may be "dark" behavior used more often by competitive individuals to outperform other employees at work.

Work withdrawal. Work withdrawal occurs when employees separate themselves from work, either physically (e.g., being late or absent) or psychologically (e.g., doing poor quality work; Hanisch & Hulin, 1990). Because competitive personality involves outperforming others, and because it is theoretically situated in a network near achievement and dominance, I expect more competitive employees to be more hard-working and persistent, and therefore less likely to demonstrate work withdrawal behavior.

Task performance. Results are less consistent with respect to task performance at work. Some researchers find no relationship between competitive personality and task performance (Helmreich, Sawin & Carsrud, 1986; Hinsz & Jundt, 2005), whereas other results indicate that competitive personality positively predicts performance (r = .21, p < .05, N = 133; Robie, Brown & Shepherd, 2005). Murayama and Elliot's (2012) meta-analysis offers some insight into this

discrepancy, with the authors finding support for a mediation model wherein competition leads to both performance approach goals, which spur performance, and performance avoidance goals, which subvert performance. Overall, findings suggest that competitive personality's relationship with CWB is relatively straight-forward, whereas its relationship with task performance may be more convoluted. Because task performance is a type of achievement, and because more competitive individuals are motivated to outperform others, I expect competitive personality will associate positively with task performance.

Organizational citizenship behavior. Employee organizational citizenship behaviors (OCB) differ from task performance in that, although they still facilitate the organization's performance, they are discretionary and not formally measured or compensated by the organization (Williams & Anderson, 1991). OCB may take the form of helping other employees (OCB-I; for example, passing along information to coworkers) or helping the organization (OCB-O; for example, protecting organizational property). More competitive employees are more likely to (a) view OCB-I as a form of cooperating or yield to coworkers with whom they are competing, and (b) view OCB-O as a waste of time that could otherwise be spent outperforming coworkers—as such, both components of OCB (OCB-I and OCB-O) would be exhibited to a lesser degree by competitive individuals. Hence, I expect OCB to be negatively related to competitive personality.

Negotiation. As summarized by Thomson, Wang, and Gunia (2010) in their annual review, negotiation can be defined as "an interpersonal decision-making process" (p.493), and is divisible into two main types: in distributive negotiation each party views the other as an adversary and attempts to divide resources in a way that maximizes personal gain, whereas in integrative negotiation parties engage in value creation to collaboratively solve a problem and

reach a solution that provides maximum gain for all involved. In empirical research, distributive negotiation outcomes are often measured in terms of points or dollar values (see Stuhlmacher & Walters, 1999; Mazei et al., 2015), with the "winner" of the negotiation identified by a higher score. Because competitive personality reflects the *desire* to win against others, it may provide strong motivation to win in negotiations; therefore, I expect competitive personality to relate positively negotiation outcomes.

The Current Research

Four existing streams of research have produced nine measures of constructs similar to competitive personality. Even though they came from different histories, these measures include similar items (see Appendix A). Study 1 aims to empirically evaluate the convergent validity amongst these measures using confirmatory factor analysis. In the process, I also create a brief scale that reflects the essential content of competitive personality as a trait. Study 1 also aims to establish the nomological validity of competitive personality vis-à-vis other personality traits, attitudes, work behaviors, and demographics. Study 2 uses meta-analytic methods to summarize evidence across these literatures on the relationships between competitive personality and other related constructs with the goal of replicating Study 1 findings concerning the nomological network of competitive personality.

CHAPTER 2: STUDY 1 METHOD

Study 1 collects primary data to (a) establish convergent validity among the aforementioned eight measures of competitive personality (i.e., the JAS, VI scale, HCAS, WOFO, CI & CI-R, SOQ, CQ, and MTQ), demonstrating that disparate literatures contain concepts ultimately reflecting competitive personality, (b) conduct confirmatory factor analysis to demonstrate which items best measure competitive personality (in terms of factor loadings and item thresholds/intercepts), and (c) investigate the nomological network of competitive personality vis-à-vis theoretically related constructs. Prior to collecting data, the study was preregistered on the Open Science Framework[10] using van't Veer and Giner-Sorolla's (2016) guidelines.

Sample

Amazon Mechanical Turk[11] workers (full-time employees in the United States with 90% or higher approval ratings) completed a survey measuring competitive personality and its correlates and outcomes. Participants completed the same survey at two time points (separated by a one-week lag), in order to assess retest reliability and to provide temporal separation for mitigating common method bias (Podsakoff, MacKenzie, Lee, & Podsakoff, 2003). Participants were paid $2.00 for completing the survey at each time point. Attention check items were used to ensure adequate data quality; specifically, I used six instructed items (e.g., "in order to demonstrate that you are reading the items carefully, please select 'strongly disagree' for this question"), which help flag survey respondents who are not paying attention or purposefully

[10] The following link contains the pre-registration form for Study 1: https://osf.io/wh8fa/register/5730e99a9ad5a102c5745a8a

[11] TurkPrime was used to help conduct the data collection; see Litman, Robinson, and Abberbock (2016).

defying instructions (DeSimone, Harms, & DeSimone, 2015). In order to be included in analyses, respondents were required to pass five out of the six attention check items.

At time 1, there were 588 participants, 445 of whom also participated at time 2; after eliminating participants who did not pass five or more attention check items, the final sample consisted of 564 participants at time 1 and 421 participants at time 2. Based on time 1 data, the final sample is 55% male and 73% white, with a mean age of 35 (SD = 10). Participants came from a variety of industries and job levels, and 61% reported earning a yearly salary between $20,000 and $60,000.

To assess potential nonresponse bias in the time-lagged (T1-T2) dataset, I compared participants who responded at time 1 only (N = 143) against those who responded at both time 1 and time 2, using t-tests on all personality variables in the time 1 data (see Appendix B). Results indicate that participants who responded at time 1 only were less conscientious (M = 3.91) than those who responded at both time 1 and time 2 (M = 4.08; t = 2.32, p < .05; d =.23). In addition, participants who responded at time 1 only demonstrated slightly higher levels of Machiavellianism (M = 3.09) than those who responded at both time 1 and time 2 (M = 2.92; t = -2.09, p < .05; d =.20). Notably, there was no significant difference in competitive personality between participants who responded at time 1 only and those who responded at both time 1 and time 2.

Measures

Competitive Personality

The following eight measures, each of which assesses a construct reflective of competitive personality, were included in the survey. All items can be found in Appendix A. All items were answered on a 1-5 “strongly disagree” to “strongly agree” scale, with the exception of

the Jenkins Activity Survey (JAS), which contains its own 4-point scale of answer choices (i.e., "definitely yes," "probably yes," "probably no," "definitely no").

***Jenkins Activity Survey* (JAS; Jenkins, Zyzanski, & Rosenman, 1979).** Four items from the "hard-driving and competitive" subscale were included. From the longer 52-item JAS Form C (Jenkins, Zyzanski, & Rosenman, 1979), I chose the 4 items that both: (a) consistently loaded ($\lambda > .30$) onto Factor H (Hard-Driving and Competitive) more often than they loaded onto Factor S or Factor J of the JAS, across the four samples analyzed by Begley and Boyd (1985, Table 2, p. 323), and (b) loaded at $\lambda > .30$ onto Factor H in Begley and Boyd's (1985) primary dataset.

***Vertical Individualism Scale* (VI; Singelis et al., 1995).** I used the 8-item vertical individualism component of Singelis et al.'s (1995) measure of culture (the full measure includes horizontal and vertical individualism and collectivism components).

***Hypercompetitive Attitude Survey* (HCAS; Ryckman et al., 1990).** Following Fletcher and Nusbaum (2008), I dropped all reverse-scored items from Ryckman et al.'s (1990) measure of hypercompetitiveness, and used only the 13 positively-scored items.

***Work and Family Orientation Questionnaire* (WOFO; Brown, Cron, & Slocum, 1998).** I included the 4-item measure of trait competitiveness from Helmreich and Spence's (1978) Work and Family Orientation Questionnaire (WOFO-2; "competitiveness" factor), as reported by Brown, Cron, and Slocum (1998).

***Competitiveness Index-Revised* (CI-R; Houston et al., 2002a).** I included the "enjoyment of competition" subscale (9 items) from the revised version of the Competitiveness Index (Houston et al., 2002a).

***Sport Orientation Questionnaire* (SOQ; Gill & Deeter, 1988).** I used the "competitiveness" (13 items) and "win" (6 items) scales of the SOQ. Because the "goal" scale of the SOQ measures a different construct "healthy" competitiveness (and is not consistent with the definition of competitive personality advanced in the current study), I did not include it.

***Competitiveness Questionnaire* (CQ; Griffin-Pierson, 1990).** I used the 8 items from the "interpersonal competitiveness" subscale of the CQ. Because the "goal competitiveness" subscale of the CQ measures "healthy" competitiveness, I did not include it.

***Motivational Traits Questionnaire* (MTQ; Kanfer & Ackerman, 2000).** Items were taken from the short-form version of the MTQ (48 items; Kanfer & Ackerman, 2000). I included only the "other referenced goals" (7 items) and "competition seeking" (6 items) scales, which make up the "competitive excellence" trait of the MTQ.

Personality Correlates

Big Five personality facets. The Big Five were measured using the Big Five Inventory (BFI; John, Naumann, & Soto, 2008). In this scale, 8 items measure extraversion (for example, "Has an assertive personality"), 8 items measure neuroticism (for example, "Worries a lot"), 9 items measure agreeableness (for example, "Likes to cooperate with others"), 9 items measure conscientiousness (for example, "Perseveres until the task is finished"), and 10 items measure openness (for example, "Values artistic, aesthetic experiences"). All items were answered on a 1-5 agreement scale).

Social desirability. I used the Marlowe-Crowne Social Desirability Scale (Short-Form C; Crowne, & Marlowe, 1960; Reynolds, 1982). This scale consists of 13 true/false items; an example item is "I'm always willing to admit it when I make a mistake."

Narcissism. Two measures of narcissism were used. First, I used the Narcissism Personality Inventory (Ames, Rose, & Anderson, 2006). This is a 16-item forced choice measure; for example one items asks respondents to choose between "I am no better or no worse than most people" and "I think I am a special person." Second, I used the Entitlement facet of the Grandiose Narcissism Scale (Foster, McCain, Hibberts, Brunell, & Johnson, 2015). This scale consists of 5 items answered on a 1-6 agreement scale. One example item is "I expect to be treated better than average."

Machiavellianism. I used the Short Dark Triad Scale (Jones, & Paulhus, 2014), which consists of 9 items answered on a 1-5 agreement scale. An example item is "It's wise to keep track of information that you can use against people later."

Core self-evaluations. I used Judge, Erez, Bono, and Thoresen's (2003) scale, which consists of 12 items answered on a 1-5 agreement scale. For example, on item is, "Overall, I am satisfied with myself."

Masculinity and femininity. I used the Personal Attributes Questionnaire (Spence & Helmreich, 1978). This scale consists of 24 bipolar items answered on a 5-point response scale; for example, respondents are asked to rate where they fall on a 5-point scale with end points "Very Submissive" vs. "Very Dominant."

Demographic Correlates

The following pieces of employee demographic information were measured: age; gender (male, female); race (African-American or Black, American Indian or Alaska Native, Asian, Latinx, Native Hawaiian or Pacific Islander, White, Other [please specify]); number of work hours per week; organizational tenure; job tenure; job level (Intern, Entry Level, Associate/Analyst, Supervisor/Manager, Executive [upper-level management], Other [please

specify]); salary (ranges from $0 to $120,000 per year in $20,000 increments); and industry of employment (Automotive, Banking, Construction, Customer Service, Education, Food/Restaurant, Health Care, Retail, Sales/Marketing, Social Service, Transportation, Other [please specify]).

Job Attitude Outcomes

Job satisfaction. I used items from Brayfield and Rothe's (1951) measure (i.e., the 8 items used by Jeon and Newman [2016]). All items were answered on a 1-5 agreement scale, and one example item is "I find real enjoyment in my work."

Job engagement. I used a measure from Saks (2006), which contains 5 items answered on a 1-5 agreement scale. An example item is "I am highly engaged in this job."

Turnover intentions. I used 3 items from Mitchell, Holtom, Lee, Sablynski, and Erez's (2001) measure, answered on a 1-5 agreement scale. The items were paraphrased to be compatible with Likert response options; for example, one item is "It is likely that I will leave this organization in the next 12 months."

Positive and negative affectivity. Watson, Clark, and Tellegen's (1988) PANAS measure was used. In this scale, respondents are asked to indicate the degree to which they *generally* experience 10 positive emotions (e.g., "strong") and 10 negative emotions (e.g., "upset"). A 5-point scale is provided, with response options "very slightly or not at all," "a little," "moderately," "quite a bit," and "extremely."

Work Behavior Outcomes

Task performance. Williams and Anderson's (1991) measure was used. This scale includes 7 items to measure task performance; an example item is "Perform tasks that are expected of me."

Organizational citizenship behavior. Williams and Anderson's (1991) measure was also used to measure OCB; the scale contains 7 items that measure OCB-I (e.g., "Go out of the way to help new employees") and 7 items that measure OCB-O (e.g., "Give advance notice when unable to come to work"). These items are also answered on a 1-5 agreement scale.

Counterproductive work behavior. I used Bennett and Robinson's (2000) Workplace Deviance Scale. This measure includes 7 items that measure CWB-I (e.g., "Made fun of someone at work") and 12 items that measure CWB-O (e.g., "Littered your work environment"). All items were answered on a 1-5 frequency scale with anchors "never," "once or twice," "monthly [once or twice per month]," "weekly [one or twice per week]," and "every day."

Work withdrawal. Hanisch and Hulin's (1990) measure was used. This scale consists of 8 items answered on a 1-5 frequency scale; the same scale anchors were used to measure CWB and work withdrawal. An example item is "Am absent when not actually sick."

Analyses

Confirmatory factor analysis (CFA) was used to fit four models: Model 1 is a unidimensional model, Model 2 is an oblique eight-factor model, Model 3 is a hierarchical model, and Model 4 is a bifactor model (see Figure 8). In addition to CFA, I calculated correlations between competitive personality (measured at time 1) with correlates and outcomes (measured at time 2) to examine the nomological network of competitive personality. Regression analyses were used to evaluate how strongly competitive personality predicts workplace outcomes (i.e., job behaviors and job attitudes) when controlling for Big Five personality traits, Dark Triad traits (i.e., narcissism measured via the NPI and Machiavellianism), and social desirability.

CHAPTER 3: STUDY 2 METHOD

Study 2 uses meta-analysis to replicate the nomological network of competitive personality examined in Study 1 and summarize evidence across literatures on the relationships between competitive personality and other related constructs.

Literature Search

A three-part approach was used to locate relevant primary studies through 2017. First, search terms (see Appendix C) were entered into the *PsycINFO* database. Quotes were used to ensure exact match, as the search targeted specific measures. For instance, searching for "Work and Family Orientation Questionnaire" yields results concerning Spence and Helmreich's measure, whereas searching the same term without quotes yields a number of work-family conflict-related results that are irrelevant to the present research. This initial search produced 999 hits in *PsycINFO* (see Appendix C).

Second, *Google Scholar* was used to look for studies that *cited* the creators of each target measure. The "cited by" and, in the case of measures with numerous and varying subscales (i.e., the JAS, HPI, and WOFO), "search within" functions in *Google Scholar* were used. This initial search produced 2,653 hits in *Google Scholar* (see Appendix C).

Third, in the Society for Industrial and Organizational Psychology (SIOP) conference presentation archives (2014-2017), the same list of search terms along with "competitive" was used, but no results were found.

Inclusion Criteria and Coding

In order to be included in the meta-analysis, studies were required to (1) provide at least one correlation between competitive personality (measured via one of the nine target measures) and an additional variable; (2) be written in English, and (3) contain correlations not based on

child (i.e. under 16) or clinical (i.e. recruited on the basis of an existing psychological condition) samples. Using these inclusion criteria, 258 of the initial set of studies were deemed viable.

Table 9 depicts the correlates and outcomes of competitive personality that were selected for coding based on (a) their significance in organizational research and (b) the existence of at least three independent samples containing relevant effect sizes (i.e., $k \geq 3$ primary studies). After selecting correlates and outcomes of interest, 136 studies (108 published and 28 unpublished) remained in the meta-analytic sample.

The author coded all studies. For each independent sample (*k*), the following pieces of information were coded: year, publication status (published/unpublished), competitive personality measure used, reliability of competitive personality measure (Cronbach's alpha), outcome variable, reliability of outcome variable measure (Cronbach's alpha), correlation between competitive personality measure and outcome variable (*r*), sample size (*N*), and type of sample ([a] Student, [b] Full-Time Employee, [c] Athlete, or, [d] Clinical [i.e., participants recruited from a medical study based on a pre-existing physical condition such as coronary heart disease]).

Moderators. Two categorical moderators are relevant in the current meta-analysis, as they may affect the correlation between competitive personality and outcomes of interest: (1) measure of competitive personality (e.g., JAS, VI, MTQ, etc.) and (2) type of sample (i.e., student, full-time-employee, etc.).

Analyses

Linear Composites

Linear composite formulas from Ghiselli, Campbell, and Zedeck (1981) were used to ensure that each independent sample was included only once in the meta-analysis. For example,

if a study used two measures of extraversion (e.g., Big Five Inventory and Eysenck Personality Questionnaire), along with a single measure of competitiveness (e.g., the WOFO) within the same sample, then these two competitiveness-extraversion correlations were combined to create a composite. This composite would represent the overall relationship between the extraversion composite and competitive personality for the sample. Linear composites are a better alternative to including multiple correlations based on a single sample in a meta-analysis, or "double counting" the sample simply because it uses several different measurement instruments for a given construct of interest; and also superior to simply averaging facet correlations together, which would yield an underestimate of the composite correlation.

Psychometric Meta-Analysis Procedures

Correlations were corrected individually for unreliability in competitive personality measures and measures of the covariates, using sample-level Cronbach's alphas. In the event that a study did not provide reliability information, the mean reliability for the variable in question from other studies in this meta-analysis was substituted. Demographic variables and objective work performance (i.e., "hard" criteria, or counts of results at work) were considered perfectly reliable (i.e., $r_{xx} = 1.0$), meaning that no correction for attenuation due to unreliability was applied. Because none of the primary studies in the meta-analytic sample reported reliability for academic performance measures (i.e., GPA, course grade), unreliability in academic performance was corrected using a reliability of .84, following Roth, BeVier, Switzer III, and Schippmann (1996; who cite Reilly and Warech [1993], and used this as the internal consistency estimate for grades). If a linear composite included more than one competitiveness measure, the average reliability of all nine competitiveness measures ($r_{xx} = .76$, $SD = .10$, $k = 101$, $N = 28{,}397$) was used as a substitute for the reliability of a single competitiveness measure.

Psychometric meta-analysis procedures from Schmidt and Hunter (2015) were used to calculate meta-analytic mean correlations (both uncorrected and corrected for unreliability), as well as 95% confidence intervals and 80% credibility intervals. It is important to include both confidence intervals and credibility intervals in meta-analytic results, as they represent different things. A confidence interval represents the variability around the estimated mean corrected correlation (ρ) due to sampling error; if a confidence interval does not include 0, researchers can reasonably assume that—no matter how many times estimation is repeated—the estimated mean correlation (ρ) would not equal 0. In contrast, a credibility interval represents the variability in the correlations that compose the meta-analytic mean correlation estimate; if a credibility interval does not include 0, researchers can reasonably assume that the majority of the correlations aggregated in the meta-analysis did not have magnitudes of 0. To summarize, confidence intervals depict variability in the *mean correlation*, whereas credibility intervals depict variability in the *individual correlations* that make up the mean correlation (Judge & Piccolo, 2004).

Moderator Analyses

When evaluating categorical moderators, it is necessary to break studies into subsets (based on levels of the moderator) and conduct a separate meta-analysis on each subset. Next, the mean effect sizes are compared across subsets. A significant difference in mean effect sizes across subsets indicates that the moderator does indeed have an effect (Schmidt & Hunter, 2014). In the current study, moderator analyses for (1) competitive personality measure and (2) sample type were conducted only when at least three independent samples ($k \geq 3$) existed for at least two levels of a moderator. The same meta-analytic procedures described above were used for each subset.

Publication Bias Check

Because small and non-significant effects are more difficult to publish, these effects may be underrepresented in existing searchable literature, resulting in upwardly biased meta-analytic correlations. For this purpose, it is important to check meta-analytic correlations for publication bias—the current study uses Egger's test of intercept (Egger et al., 1997; Sterne & Egger, 2005). As explained by Kepes, Banks, McDaniel, and Whetzel (2012), Egger's test detects publication bias by examining the intercept of the line predicting *standardized effect* (effect size divided by its standard error) from *precision* (the inverse of a sample's standard error, 1/SE). In summary, this test amounts to a weighted regression of the *effect* on its *standard error*. When there is no relationship, the prediction line is flat, with an intercept running through the origin (i.e., $\beta = 0$); when a relationship does exist, the prediction line has a non-zero intercept (i.e., $\beta \neq 0$). Ultimately, a non-zero intercept suggests that effect sizes from smaller, less precise samples differ systematically from those of larger, more precise samples, providing evidence of publication bias.

Both Sterne and Egger (2005) and Kepes and colleagues (2012) identify a key shortcoming of Egger's test of intercept as its dearth of power (although both papers also note that Egger's test is a better alternative to Begg and Mazumdar's [1994] rank correlation test). Therefore, when determining which meta-analytic correlations to test for publication bias, I followed a rule of thumb from Sterne et al. (2011), who suggest that "tests for funnel plot asymmetry should not be used when there are fewer than 10 studies in the meta-analysis because test power is usually too low to distinguish chance from real asymmetry" (p.4). To address the issue of low power, the current publication bias analyses include only meta-analytic correlations with more than 10 published studies ($k \geq 10$).

CHAPTER 4: STUDY 1 RESULTS

Descriptive statistics including means, standard deviations, Cronbach's alpha internal reliabilities, and correlations among all study variables (time 1) can be found in Table 2.

Confirmatory Factor Analysis Results

Model Specification

Confirmatory factor analysis (CFA) was used to fit four *a priori* models using time 1 data (see Figure 8). Model 1 is a unidimensional model, wherein all items from the eight competitive personality measures load onto a single general factor representing competitive personality. Model 2 is an oblique eight-factor model, wherein items load onto group factors representing their respective measures (e.g., items from the WOFO load onto the WOFO factor, items from the SOQ load onto the SOQ factor, etc.); these group factors are allowed to covary. Model 3 is a hierarchical model, wherein items load onto group factors representing their respective measures, but these group factors then load onto a higher-order general factor representing competitive personality. Finally, Model 4 is a bifactor model, wherein items double-load: once onto the group factor representing their respective measures, and once onto a general factor representing competitive personality.

Models were run on both item-level covariances (Models 1A – 4A) and on multi-item parcels (Models 1B – 4B). Item parceling reduces the number of indicators corresponding to each latent factor by using parcels, or sets of items, as indicators instead of using all individual items as indicators (see review by Williams, Vandenberg, & Edwards, 2009). In the current models, each parcel represents the average of 2-5 items. We combined item into parcels so as to form 3 parcels per factor. Items were assigned to parcels randomly, using a series of Excel functions (i.e., "rand()" and "rank"). In Models 1B – 4B, item parceling was applied to all

competitive personality measures except for the JAS and WOFO, each of which contains only 4 items (not enough to form into 3 parcels, so item-level indicators were still used for the JAS and WOFO).

In Model 4A and Model 4B (i.e., bifactor models without and with item parceling, respectively), I imposed a few additional constraints on item parameters. First, in the results for Model 4B, there were two problems with the initial solution. The model did not converge, and indicator uniquenesses for indicators "VI.p2" and "WOFO_2" were negative estimates, which are theoretically impossible given that uniqueness are variance components. Therefore, these negative parameter estimates were constrained to zero, and the subsequent model converged. Second, in the initial results for Model 4A (item-level analysis, without item parceling), there were also two problems. The initial model did not converge, and the estimated latent factor variance for the WOFO group factor was negative. After the latent factor variance for the WOFO group factor was fixed to .001 (i.e., a positive value near zero) the model converged easily.

Model Fit

Of the eight models tested, Model 4B, a bifactor model with item parceling, demonstrated the best fit (CFI = .916, TLI = .901, RMSEA = .095, SRMR = .048; see Table 3). Models that used item parceling (i.e., Models 1B – 4B) outperformed their counterparts (i.e., Models 1A – 4A), with CFI indices .13 to .16 higher and SRMR indices .02 to .03 lower; these differences are considered meaningful based on benchmarks provided by Cheung and Rensvold (2002). Overall, findings indicate that after smoothing idiosyncrasies in items via parceling, adequate fit can be obtained, especially by means of a bifactor model.

In fact, a bifactor model demonstrated the best fit, both among the models that used item parceling (Models 1B – 4B) and among the models that did not use item parceling (Models 1A –

4A). Most notably, bifactor models 4A and 4B demonstrated better fit than oblique eight-factor models 2A and 2B (respectively), suggesting that allowing items to load onto a competitive personality general factor better represents their true underlying structure than simply allowing them to load onto correlated group factors.

Factor Loadings

Of the four models that provided item-level parameters (i.e., models without item parceling), Model 4A (item-level bifactor model) demonstrated the best fit; therefore, I report standardized factor loadings for all items based on this model in Table 4 (cf. loadings based on Models 1B – 4B [item parceling models] can be found in Table 5). As seen in Table 4, most items' loadings on the competitive personality general factor are considerably higher than their loadings on their respective group factors. Overall, the average standardized item loading on the competitive personality general factor is .67, whereas the average standardized loading of an item on its respective group factor is only .30. When a standardized loading is squared, it can be thought of as the percent of variance in an item that is accounted for by a given factor. Across all items, an average of 45% of item variance is explained by the competitive personality general factor, whereas only 9% of item variance is explained by the group factor.

Item variance attributable to the general factor versus the specific group factors can also be compared for each competitiveness instrument separately. For each of the eight measures, at least 30% of item variance on average is accounted for by the competitive personality general factor, and more than 50% of item variance in the CI-R, WOFO, and SOQ is accounted for by the competitive personality general factor. In contrast, less than 10% of item variance is accounted for by group factors for five out of the eight competitiveness instruments (excluding the HCAS [15%], the CI-R [15%], and the JAS [20%]). Taken together, these findings indicate

that the eight measures of competitive personality administered in the current study are primarily tapping into the general factor of competitive personality.

Modeling Common Method Variance

The models outlined above assume the shared variance in competitive personality items results from a latent competitive personality general factor. However, common method variance may provide an alternate explanation for the obtained general factor, and this possibility should therefore be examined. As outlined by Podsakoff and colleagues (2003) common method variance can occur due to common rater effects. That is, influences from within the respondent can produce artifactual covariance among variables measured in a survey. For example, the common rater effect of *acquiescence* refers to a respondent's tendency to agree with all items in a survey, no matter their content. The current research measures three such common rater effects: positive affectivity, negative affectivity, and social desirability. In structural equation modeling, it is possible to control for the effects of *directly measured latent methods factors* (Podsakoff et al., 2003, p. 891), and this approach was applied to Model 4B (bifactor model with item parceling). Thus, Model 4B.c is identical to Model 4B, except that three new latent factors have been added: a positive affectivity factor, a negative affectivity factor, and a social desirability factor. These latent factors have indicators[12] from their respective measures (i.e., PANAS and the social desirability scale), and, in addition, all competitive personality items were allowed to load onto each of the three method factors. In order to achieve model identification, the same additional constraints that were imposed in Model 4B were necessary again in Model 4B.c: indicator uniquenesses for indicators "VI.p2" and "WOFO_2" were constrained to equal zero.

[12] Note that item parceling was not used for the items of the three method factors.

Fit indices for Model 4B.c appear in Table 3. Overall, the fit in Model 4B.c ($\chi^2_{(df=1,550)}$ = 4,335.4, CFI=.90; TLI=.89; RMSEA=.056 [.054-.058], SRMR=.081) is slightly worse than the fit in Model 4B. Regarding the three method factors, the average standardized item loading of positive affectivity items onto the positive affectivity factor is .74, whereas the average standardized item loading of competitive personality item parcels onto the positive affectivity factor is only .30. The average standardized item loading of negative affectivity items onto the negative affectivity factor is .80, whereas the average standardized item loading of competitive personality item parcels onto the negative affectivity factor is only .08. Finally, the average standardized item loading of social desirability items onto the social desirability factor is .50, whereas the average standardized item loading of competitive personality item parcels onto the social desirability factor is only .18. These findings indicate that across all competitive personality item parcels, an average of 9%, 1%, and 3% of item variance is explained by the positive affectivity, negative affectivity, and social desirability factors (i.e., common method factors), respectively.

Further, in Model 4B.c (with common method bias due to PA, NA, and social desirability controlled), the competitive personality general factor remains strong. Across all competitive personality item parcels, 49% of indicator variance is explained by the competitive personality general factor, and only 8% of indicator variance is explained by respective group factors. To summarize, it appears that the competitive personality general factor explains considerably more variance in competitive personality indicators than do the specific factors, even after removing variance due to the three method factors.

Construction of the *Competitive Personality Scale*

After determining that items from eight main measures of competitive personality are largely measuring a single construct, I selected existing items to develop a brief new scale: the Competitive Personality Scale (CPS; see Appendix D). A detailed explanation of how the scale was constructed is provided below.

Choosing Items

A three-step process was used to select items for the CPS. First, I evaluated item loadings (based on Model 4A; see Table 4) on the competitive personality general factor. These loadings reflect how much each item represents the competitive personality general factor. Items with loadings below .70 were eliminated; this left 33 of the original 78 items in the pool for consideration (these items appear in Appendix D).

Second, I evaluated item intercepts (based on Model 4A; see Table 4) on the competitive personality general factor. Intercepts are relevant in the current scale development because they can be thought of as item difficulties (Drasgow & Parsons, 1983). An "easy" item will be endorsed by many participants, whereas a "difficult" item will be endorsed by fewer participants. In the current case, an "easy" item would be endorsed by participants with moderate levels of competitive personality, whereas a "difficult" item would be endorsed only by participants with high levels of competitive personality. Intercepts for the 33 items under consideration fell between 2.04 and 3.06, with one outlier of 3.39; so I sorted the items into 5 buckets of roughly equal intervals: the first bucket contained items with intercepts between 2.00 and 2.25 (4 items), the second bucket contained items with intercepts between 2.26 and 2.45 (6 items), the third bucket contained items with intercepts between 2.46 and 2.65 (12 items), the fourth bucket contained items with intercepts between 2.66 and 2.85 (4 items), and the fifth bucket contained

items with intercepts between 2.86 and 3.06[13] (8 items). To ensure an equal sampling of items of various difficulties (i.e., to create a competitive personality scale that discriminates individuals across a wider range of the underlying trait), I determined that one item should be chosen from each bucket of intercept ranges to produce the final 5-item scale.

Third, to determine which item from each of the 5 intercept buckets would be chosen, I used an empirical method. I started by examining time 1 data to determine which external variables demonstrated consistent correlations with competitive personality. In total, 7 external variables demonstrated average correlations above .20 with competitive personality (across the 8 measures): extraversion, narcissism, grandiose narcissism, Machiavellianism, masculinity, job engagement, and positive affectivity. Next, I calculated correlations between each of the 33 items under consideration and the 7 relevant variables. Of these 33 items, 23 demonstrated consistent correlations (i.e., all *r* values above .20) with all 7 of the relevant external variables. In the first intercept bucket, there was only 1 item left; in the second and fourth buckets, there were 3 items left; in the fifth bucket, there were 6 items left; and in the third bucket, there were 10 items left. In forming the 5-item scale, I selected the item from the first intercept bucket by default. I then went on to subjectively select the final items from the second, third, fourth, and fifth intercept buckets. To do so, I evaluated the wording of the items to determine which were (a) easiest to understand and (b) most generalizable (e.g., many SOQ items refer specifically to sports, making them ungeneralizable). The final set of 5 items, along with loadings and intercepts on the competitive personality general factor (based on Model 4A), and correlations with the 7 relevant variables used for empirical item selection, appear in Table 6.

[13] The item with an intercept of 3.39 was also included in this final bucket (high difficulty items).

Scale Reliability and Validity

After creating the 5-item Competitive Personality Scale, I continued to examine its reliability and validity. Regarding reliability, the CPS yielded a Cronbach's alpha of .91 based on time 1 data and a Cronbach's alpha of .92 based on time 2 data. Individual items also displayed high internal consistency, with item-total correlations ranging from .84 to .90 based on time 1 data, and item-total correlations ranging from .83 to .89 based on time 2 data. Furthermore, all five items displayed high retest reliability, with correlations between time 1 and time 2 item scores (1 week lag) ranging from .64 to .80. These results appear in Table 6.

To examine convergent and nomological validity, I calculated correlations between the CPS and all study variables based on time 2 data (see Table 7). The CPS demonstrated high convergent validity with the other eight measures of competitive personality: correlations ranged from .68 to .94, and all were significant at the $p < .01$ level. In addition, the CPS showed a pattern of large and statistically significant correlations with theoretically relevant correlates and outcomes that closely mimicked the patterns of other competitive personality measures.

Nomological Network Results

Table 8 presents lagged correlations between competitive personality at time 1 (measured with eight competitiveness scales plus the new CPS) and both correlates and outcomes at time 2. Overall, results indicate that competitive personality relates positively to both desirable correlates and outcomes, such as positive affectivity and core self-evaluations, as well as undesirable correlates and outcomes, such as dark triad traits and interpersonal-directed counterproductive work behavior.

Personality Correlates

Across all nine measures, competitive personality related positively and significantly to extraversion (*r* values between .20 and .39, $p < .01$) and masculinity (*r* values between .22 and .54, $p < .01$), suggesting that more competitive individuals are also more assertive, dominant, and outgoing. Competitive personality also related strongly to dark triad traits of narcissism (NPI *r* values between .33 and .53, $p < .01$; grandiose narcissism *r* values between .23 and .53, $p < .01$) and Machiavellianism (*r* values between .24 and .55, $p < .01$). It appears that a stronger desire to win and beat others coincides with greater levels of self-absorption and manipulative tendencies. With the exception of the HCAS and the VI, all measures related positively and significantly to core self-evaluations (*r* values between .17 and .39, $p < .01$), indicating that more competitive individuals also have more positive self-referential attitudes. Some evidence suggests that the Big Five traits of agreeableness, conscientiousness, and neuroticism also relate to competitive personality. Regarding agreeableness, correlations were consistently negative across competitive personality measures but statistically significant for only five of nine measures (significant *r* values between -.12 and -.33; $p < .05$ for SOQ, $p < .01$ for all others). Regarding conscientiousness, all competitive personality measures except for the HCAS demonstrated positive associations, but only six of eight were statistically significant (significant *r* values between .12 and .28, *p*-values range from < .05 to < .01). Regarding neuroticism, results vary, with some competitive personality measures demonstrating positive correlations, others demonstrating negative correlations, and inconsistency with respect to statistical significance. Limited support exists for a relationship between competitive personality with social desirability, openness, or femininity (i.e., four or fewer competitive personality measures show modest statistically significant correlations with these personality variables).

Demographic Correlates

Results imply a negative relationship between competitive personality and age (*r* values across all nine competitive personality measures range from -.10 to -.23, *p*-values range from < .05 to < .01); that is, younger participants reported being more competitive. Some evidence points to a relationship between competitive personality and gender, such that men are more competitive: five of nine competitive personality measures demonstrated small to moderate statistically significant correlations (significant *r* values between -.11 and -.21, *p*-values range from < .05 to < .01). There does not appear to be any association between competitive personality and workload, organizational tenure, or job tenure.

Job Attitude Outcomes

Across all nine measures, competitive personality related positively and significantly to positive affectivity (*r* values between .17 and .36, $p < .01$), suggesting that more competitive people also tend to experience more positive emotions. Competitive personality also related positively and significantly to job engagement across all nine measures (*r* values between .11 and .31; $p < .05$ for HCAS, $p < .01$ for all others), implying that more competitive people tend to experience higher engagement at work. Similarly, all competitive personality measures, with the exception of the HCAS, correlated positively and significantly with job satisfaction (*r* values between .13 and .25; $p < .05$ for VI, $p < .01$ for all others), indicating that in addition to being more engaged at work, more competitive people are also more satisfied at work. Regarding negative affectivity, results vary: the HCAS and VI correlated positively with competitive personality ($r = .28$ and $r = 14$, respectively; $p < .01$), the CI-R correlated negatively with competitive personality ($r = -.13$, $p < .05$), and the other six measures demonstrated a mix of

small positive and negative correlations, none of which were statistically significant. There does not appear to be any association between competitive personality and turnover intentions.

Work Behavior Outcomes

Competitive personality demonstrated a relatively consistent positive association with CWB-I, with seven of nine competitive personality measures showing statistically significant correlations (r values between .12 and .36; $p < .05$ for WOFO, $p < .01$ for all others; sans CI-R and JAS). These results suggest that more competitive individuals seem to engage in more negative work behaviors directed toward colleagues. The HCAS and VI also showed (a) positive and statistically significant correlations with CWB-O (r = .30 and .16, respectively; $p < .01$) and work withdrawal (r = .27 and .14, respectively; $p < .01$) as well as (b) negative and statistically significant correlations with task performance (r_{HCAS} = -.27, $p < .01$; r_{VI} = -.10, $p < .05$) and OCB-O (r_{HCAS} = -.27, $p < .01$; r_{VI} = -.12, $p < .05$). Overall, these results indicate that the HCAS and VI measures may tap into aspects competitive of personality that relate more strongly to certain work behaviors (i.e., CWB-O, work withdrawal, task performance, OCB-O), whereas the other measures of competitive personality do not access this part of competitive personality's construct domain.

Incremental Validity in Predicting Work Outcomes

Regression analyses were used to evaluate how strongly time 1 competitive personality (measured via the CPS) predicts time 2 workplace outcomes (i.e., job behaviors and job attitudes) when controlling for Big Five personality traits, Dark Triad traits (i.e., narcissism measured via the NPI and Machiavellianism), and social desirability. Results suggest that competitive personality predicts (a) job satisfaction, (b) job engagement, and (c) OCB-I above

and beyond other key personality variables (i.e., Big Five personality traits, narcissism, Machiavellianism, and social desirability; see Table 13).

Job Attitude Outcomes

Even when the effects of other personality variables (Big Five, narcissism and Machiavellianism, and social desirability) are taken into account, competitive personality continues to predict job engagement (standardized $\beta = .21$, $p < .01$) and job satisfaction (standardized $\beta = .15$, $p < .01$). These results suggest that competitive personality has utility for predicting key job attitudes above and beyond other personality predictors.

Work Behavior Outcomes

Although the relationship between competitive personality and CWB-I drops out when accounting for the effects of Big Five, narcissism, Machiavellianism, and social desirability; it appears that controlling for these personality traits reveals a predictive relationship between competitive personality and OCB-I (standardized $\beta = .15$, $p < .01$). This is a suppressor effect. These results indicate that when other key personality traits (i.e., Big Five, narcissism, Machiavellianism, and social desirability) are held constant, competitive personality positively predicts OCB-I.

CHAPTER 5: STUDY 2 RESULTS

Overall, the meta-analysis results (shown in Table 9) depict competitive personality as a trait that relates positively to both desirable correlates and outcomes, such as self-efficacy and performance, as well as undesirable correlates and outcomes, such as dark triad traits and counterproductive work behavior. Regarding publication bias, eleven meta-analyses contained an adequate number of effect sizes (i.e., published $k \geq 10$) to conduct Egger's test of intercept. Out of these eleven, only the meta-analysis of correlations between *competitive personality and stress* tested positively for publication bias (see Table 10).

Personality Correlates

In the realm of personality correlates, results indicate that competitive personality relates most strongly to dark triad traits and self-efficacy. For narcissism the mean correlation corrected for unreliability was .53 (k = 8; N = 2,078; CI-95 = [.44, .62]), and for Machiavellianism the mean correlation corrected for unreliability was .53 (k = 4; N = 1,152; CI-95 = [.38, .69]). Echoing the results of Study 1, these findings suggest that a stronger desire to win and beat others coincides with greater levels of certain "dark" personality traits. For self-efficacy the mean correlation corrected for unreliability was .53 (k = 14; N = 4,537; CI-95 = [.21, .36]), implying that more competitive individuals also have a stronger sense that they can succeed. Regarding the relationship between competitive personality and the Big Five, meta-analysis results provide support for positive associations between competitive personality and extraversion (ρ = .19; k = 22; N = 4,982; CI-95 [.07, .30]), openness (ρ = .28; k = 13; N = 2,989; CI-95 [.11, .45]), and conscientiousness (ρ = .12; k = 12; N = 2,721; CI-95 [.03, .21]).

Demographic Correlates

In contrast to Study 1 findings, meta-analysis results did not uncover a relationship between competitive personality and age, gender, workload (i.e., hours worked per week), or tenure; all four confidence intervals included zero.

Job Attitude Outcomes

The most sizable meta-analytic correlations in terms of job attitude outcomes were undesirable in nature: competitive personality related to both anger/hostility (ρ = .27; k = 7; N = 786; CI-95 [.15, .39]) and stress (ρ = .14; k = 19; N = 6,834; CI-95 [.08, .20]). Given the history of the JAS, these findings are not surprising, as stress and anger are hallmarks of coronary heart disease-prone profile. Competitive personality also displayed a small but statistically significant corrected meta-analytic correlation of .07 with anxiety (k = 7; N = 978; CI-95 [.02, .11]).

Work Behavior Outcomes

In contrast to the results of Study 1, Study 2 meta-analyses produced consistent statistically significant positive relationships between competitive personality and both positive and negative work behaviors. Specifically, competitive personality correlated moderately with CWB (ρ = .25; k = 7; N = 1,481; CI-95 [.14, .36]) and somewhat with work withdrawal (ρ = .12; k = 4; N = 949; CI-95 [.02, .23]). On the other hand, competitive personality also correlated moderately with job performance, both objectively measured (i.e., using "hard" criteria, or counts of results at work) and subjectively measured (i.e., using "soft" criteria, or individual evaluations of employee work behavior). Specifically, the mean corrected correlation between objectively-measured performance and competitive personality was .19 (k = 9; N = 1,367; CI-95 = [.07, .31]), and the mean corrected correlation between subjectively-measured performance and competitive personality was also .19 (k = 18; N = 2,685; CI-95 = [.09, .30]). These findings

indicate that more competitive individuals are more likely to enact negative behaviors at work, but they also tend to have higher work performance. The relationship between competitive personality and academic performance was also meta-analyzed and results point to a modest association, with a mean corrected correlation of .11 (k = 15; N = 3,591; CI-95 = [.05, .16]).

Because an adequate number of effects sizes was not located to study negotiation *outcomes,* I chose to focus instead on negotiation *styles,* also called *conflict resolution styles* or *conflict management styles*. Deutsch (1949) differentiated between cooperation and competition as strategies for achieving goals. Subsequently, both Thomas (1992) and Pruitt (1983) provided models that propose several types of negotiation style based on a two-dimensional framework, wherein one dimension reflects the target party's interests and the other dimension reflects the opposing party's interests. Measures such as Rahim and Magner's (1995) Organizational Conflict Inventory (Second Edition) include subscales for each main negotiation style: *integrating* (high self-concern, high other-concern) reflects collaboration between parties to reach a solution, *obliging* (low self-concern, high other-concern) reflects prioritizing the other party's interests at the expense of one's own, *dominating* (high self-concern, low other concern) reflects imposing or forcing one's interests on the other party to win the negotiation, *avoiding* (low self-concern, low other-concern) reflects withdrawing from conflict, and *compromising* (medium self-concern, medium other-concern) reflects a give-and-take approach to reach an understanding. Regarding negotiation styles, results suggest that more competitive individuals are more likely to use the dominating conflict management style (ρ = .49; k = 3; N = 1,315; CI-95 [.34, .64]).

Moderator Results

Competitive Personality Measure Used

An adequate number of independent samples ($k \geq 3$ studies) could not be located to analyze each of the nine competitive personality measures separately, but for most correlates and outcomes, I was able to run moderator analyses for at least two competitive personality measures. The HPI produced higher correlations than the WOFO (i.e., the corrected meta-analytic correlations produced by studies using HPI versus the WOFO had non-overlapping confidence intervals, at least one of which did not include zero; see Table 11) for extraversion (ρ_{WOFO} = .05, CI-95 [-.05, .16]; ρ_{HPI} = .74, CI-95 [.16, 1.00]) and openness (ρ_{WOFO} = .03, CI-95 [-.02, .07]; ρ_{HPI} = .52, CI-95 [.32, .71]). Another notable result occurred in the meta-analysis between competitive personality and self-esteem: when measured via the HCAS, competitive personality related negatively to self-esteem (ρ = -.11, CI-95 [-.17, -.06]), whereas when measured via VI, competitive personality related positively to self-esteem (ρ = .13, CI-95 [.05, .20]). It is also worth noting that even after separating effect sizes based on competitive personality measure used, competitive personality still did not relate meaningfully to the demographic correlates of age, sex, or tenure.

Sample Type

The distinction between students and full-time employees produced different meta-analytic correlations in two cases (i.e., the corrected meta-analytic correlations produced by studies using student samples versus employee samples had non-overlapping confidence intervals, at least one of which did not include zero; see Table 12). First, the corrected meta-analytic correlation between competitive personality self-efficacy was higher in employees (ρ = .42, CI-95 [.30, .53]) than in students (ρ = .23, CI-95 [.16, .29]). Second, the corrected meta-

analytic correlation between competitive personality and age was significant (i.e., the confidence interval did not include zero) for employees (ρ = -.11, CI-95 [-.18, -.04]) but not students (ρ = .00, CI-95 [-.08, .08]).

CHAPTER 6: DISCUSSION

The present paper provides a comprehensive foundation for the study of competitive personality as a trait. First, competitive personality was defined as the *desire to win against others.* Second, the historical origins of competitive personality were reviewed: competitive personality research has origins in health psychology, psychology of gender, cross-cultural psychology, and psychoanalysis. Third, the most-used measures of competitive personality were compiled, and their convergent validity was examined using confirmatory factor analysis. Results suggest that the eight measures of competitive personality administered in the current study are primarily tapping into the general factor of competitive personality—loadings on the competitive personality general factor were considerably higher than loadings on group factors. This examination of competitive personality measurement also included development of a brief new measure: the Competitive Personality Scale. This instrument demonstrated good reliability (α_{time1} = .91, α_{time2} = .92), good convergent validity (correlations with other competitive personality measures range from .68 to .94, all $p < .01$), and good nomological validity (relationships with key correlates closely resemble those of other competitive personality measures). Fourth, the nomological validity of competitive personality was examined by looking at its correlations with other personality traits, job attitudes, work behaviors, and demographics in a large sample of primary data. Results display moderate to high positive correlations between competitive personality and (1) extraversion, (2) narcissism, (3) Machiavellianism, (4) core self-evaluations, (5) masculinity, (6) job satisfaction, (7) job engagement, (8) positive affectivity, and (9) CWB-I, as well as a moderate negative correlation between competitive personality and age. In addition, competitive personality predicts variance in (1) job satisfaction, (2) job engagement, and (3) OCB-I above and beyond variance predicted by other key personality variables (i.e., Big

Five, Dark Triad, and social desirability). Fifth, after demonstrating that a variety of psychological literatures have focused indirectly on competitive personality, and that a number of measures generated from these literatures appear to reflect a competitive personality general factor, meta-analytic methods were used to summarize evidence across these literatures on the relationships between competitive personality and other related constructs. Some results echo primary data findings, indicating that competitive personality relates positively to (1) extraversion, (2) narcissism, (3) Machiavellianism, (4) self-efficacy, and (5) CWB. In addition, meta-analytic results suggest that competitive personality also relates positively to (1) openness, (2) conscientiousness, (3) objectively-measured job performance, (4) subjectively-measured job performance, (5) academic performance, (6) work withdrawal, (7) dominating conflict management, (8) anger/hostility, and (9) stress.

Implications for Theory and Practice

In summary, results depict competitive personality as a trait that relates to both desirable correlates and outcomes as well as undesirable correlates and outcomes (see Figure 9 for a summary of nomological validity results across Study 1 and Study 2). At least three implications can be drawn from these findings. First, more competitive people appear more *motivated* to win and succeed. Competitively personality's positive correlations with extraversion, masculinity, positive affectivity, job satisfaction, and job engagement give the impression that more competitive people tend to be more outgoing and assertive, are more likely to enjoy working in their jobs, and generally feel more alert and determined. Second, more competitive people seem to have a stronger sense that they have the *ability* to win and succeed. Competitive personality correlates positively with self-efficacy, core self-evaluations, conscientiousness, and performance (both at work and in school), suggesting that more competitive people are both

more inclined to believe they can succeed and more inclined to work hard and ultimately perform well. Third, more competitive people appear more inclined to *use any means necessary* to win and succeed. Competitive personality's positive correlations with narcissism, Machiavellianism, CWB, work withdrawal, anger, stress, and the propensity to use domination as a means of conflict management depict a dark side to the trait. This aspect of competitive personality paints a picture of highly competitive people as individuals who feel entitled to win, and are willing to use any tools and methods available to them—even unethical or unkind ones—to achieve victory. Overall, the trait of competitive personality strikes a unique balance between positive and negative.

When asserting the validity of a personality trait, it is important to differentiate it from the Big Five. In this case, competitive personality demonstrates meaningful correlations with extraversion, openness, conscientiousness, and possibly agreeableness, but none of these correlations surpass .40 in magnitude (see Table 8 and Table 9). Ultimately, results indicate that competitive personality cannot be explained fully in terms of the Big Five; thus, it cannot be replaced by the Big Five.

When asserting the utility of a personality trait, it is important to demonstrate its ability to predict key workplace outcomes. In this case, competitive personality demonstrated significant predictive ability for two primary workplace variables: *job satisfaction* (*r* ranges between .13 and .25 across eight measures of competitive personality; $p < .05$ for VI; $p < .01$ for all others) and *job performance* (subjectively-measured job performance $\rho = .19$, CI-95 = [.09, .30]; objectively-measured job performance $\rho = .19$, CI-95 = [.07, .31]). These results indicate that competitive personality has a role in organizational research.

Limitations and Future Directions

One key question that merits further study is whether competitive personality is more of a positive or negative influence on behavior, particularly in an organizational context. Is it advantageous to hire individuals high in competitiveness because they are more likely to be high performers, or is it risky to hire individuals high in competitiveness because they are more likely to enact CWB? The answer may lie in environmental factors that "activate" a highly competitive individual's ruthless side. Poor person-environment fit or stress at work may moderate relationships between competitive personality and outcomes such as performance or CWB. Alternately, researchers could look at competitive personality as a moderator. For instance, perhaps the correlation between negative affect and CWB is moderated by competitive personality, such that the correlation between negative affect at work and CWB is larger for individuals high in competitive personality and smaller for individuals low in competitive personality.

Another area for future consideration is the interface between competition and cooperation. Early negotiation research differentiated between cooperation and competition as strategies for achieving goals (Deutsch, 1949); however, the current research did not examine the role of cooperation in defining and studying competitive personality. If competitiveness can be thought of as a personality trait, is there a corresponding personality trait that encapsulates cooperativeness? Would this trait be distinct from Big Five agreeableness? Additional studies may investigate the measurement and validity of cooperativeness as a personality trait, and determine whether cooperative personality is negatively correlated to competitive personality.

Finally, the target of comparison—that is, who a competitive individual is attempting to win against—merits additional attention. The current research defines competitive personality as

the desire to win against *others*, differentiating it from concepts such as goal competitiveness and personal development competitiveness, which focus on winning against the *self* via goal-setting and personal record breaking. However, "others" is a broad term. How does the experience of competing against one's teammates at work differ from the experience of competing against one's boss? Does a higher level of competitive personality amount to identifying more competitors in everyday life? For example, perhaps an individual lower in competitive personality perceives only a few coworkers as rivals, whereas an individual higher in competitive personality perceives every member of the organization as a rival. Future research may address these questions.

CHAPTER 7: CONCLUSION

Overall, this paper aims to enhance and clarify understanding of competitive personality as a construct, with focus on its importance in organizational research. To this end, five contributions are made: First, a concise definition of competitive personality is provided based on existing literature. Second the multi-faceted origins of competitive personality, comprising four distinct branches of psychological research, are summarized. Third, the most-used measures of competitive personality are compiled, and their convergent validity is evaluated via confirmatory factor analysis. Also, from the psychometric analysis the Competitive Personality Scale, a brief measure of competitive personality composed of items with large factor loadings and a range of item difficulties, is presented. Fourth, the nomological network of competitive personality (i.e., related personality traits, job attitudes, work behaviors, and demographics) is investigated via a large sample of primary data. Fifth, nomological network findings are replicated using meta-analysis. Ultimately, findings suggest that competitive personality is an important facet of human individual differences, that it has been studied under many different labels, and that it predicts critical outcomes in work organizations.

TABLES

Table 1. Summary of the Development of Key Competitiveness Measures

Measure	Brief History
Jenkins Activity Survey (JAS)	**JENKINS, FRIEDMAN, & ROSENMAN (1965)** - Created the first objective test version (i.e., not the traditional structured interview version) of the Jenkins Activity Survey to measure Type A behavior pattern (i.e., coronary-prone behavior pattern. - Collected data by administering the JAS in the Western Collaborative Group Study (WCGS; all male sample, N= ~3000). **JENKINS, ROSENMAN, & FRIEDMAN (1967)** - Analyzed which items from the JAS accurately discriminate between Type A versus Type B respondents; WCGS sample. **ZYZANSKI & JENKINS (1970)** - Conducted factor analyses (on 2 samples from WCGS) on the items found to discriminate between Type A and Type B respondents, and repeatedly found three factors: *hard-driving*, *job involvement*, and *speed and impatience*. **WALDRON, ZYZANSKI, SHEKELLE, JENKINS, & TANNEBAUM (1977)** - Replicated the three-factor structure of the JAS in a new sample including men as well as women. **BENGLY & BOYD (1985)** - Pointed out key weaknesses of the JAS, most notably its scoring system (which recoded response options to "1" [versus "0"] in the way that maximized the item-total correlation). Proposed new scoring scheme that rank-orders response options. - Using EFA, proposed a five-factor structure for the JAS, instead of the traditional three-factor structure. The 2 new factors are: *comparisons with the average worker*, and *eats too fast*. **BOYD & BENGLY (1987)** - Suggested replacing the discriminant analysis-based weighting system with an unweighted unit scoring system for the JAS, effectively transforming the JAS from a multiple-choice test into a Likert scale measure (which increased reliability coefficients for each scale).

Table 1 (continued)

Measure	Brief History
Work and Family Orientation Questionnaire (WOFO)	**SPENCE & HELMREICH (1978)** - Created the WOFO, including 4 scales: *work*, *mastery*, *competitiveness*, and *personal unconcern.* - WOFO 1 and WOFO 2 (revised edition) were introduced as a way to measure differences in achievement motivation between males and females. **BROWN, CRON, & SLOCUM (1998)** - Popularized a 4-item shortened version of Spence and Helmreich's WOFO *competitiveness* scale.
Sport Orientation Questionnaire (SOQ)	**GILL (1986)** - First published use of the 3 subscales (*competitiveness*, *goal*, *win*) and component items (plus 2 additional items in the *win* scale) that would later become the SOQ. **GILL & DEETER (1988)** - Dropped 2 items from the *win* scale, then named Gill's (1986) instrument the Sport Orientation Questionnaire (SOQ): a three-dimensional measure of individual differences in sport achievement orientation. - Cited Spence and Helmreich (1978) and Helmreich and Spence (1978) as key influences on the field of measuring achievement motivation and more specifically competition, but asserted that the WOFO does not relate specifically enough to sports, justifying the need for a new scale (i.e., the SOQ). **GILL, DZEWALTOWSKI & DEETER (1988)** - Validated the SOQ in high school and university samples. - Found that the SOQ outperformed the WOFO in its ability to differentiate between competitive sport participants and non-participants in discriminant analysis.
Hypercompetitive Attitude Questionnaire (HCAS)	**RYCKMAN, HAMMER, KACZOR, & GOLD (1990)** - Created the Hypercompetitive Attitude Scale based on the definition of hypercompetitiveness described by Horney (1937). - Conducted a series of studies to establish the reliability and nomological validity of the HCAS with the Win-at-any-Cost Sports Competition Scale (Lakie, 1964), Self-Esteem Scale (Rosenberg, 1965), and Neuroticism Scale (Eysenck Personality Questionnaire; Eysenck & Eysenck, 1975).

Table 1 (continued)

Measure	Brief History
Competitiveness Questionnaire (CQ)	**GRIFFIN-PIERSON (1990)** - Created the Competitiveness Questionnaire to distinguish goal competitiveness from interpersonal competitiveness. - Cited Helmreich and Spence (1978) as key figures in defining interpersonal competitiveness.
Competitiveness Index (CI)	**SMITHER & HOUSTON (1992)** - Created the Competitiveness Index to measure competitiveness, which the authors define as a construct that arose from four streams of psychology: achievement motivation, sports psychology, experimental social psychology, and personality assessment. - Analyzed convergent validity of the measure with the SOQ and WOFO. HOUSTON, HARRIS, MCINTIRE, & FRANCIS (2002A) - Modified the original version of the CI: (a) The original true/false response scale was converted to a 5-point Likert scale (b) Six items were dropped from the original 20-item scale, producing the 14-item CI-Revised. This scale contained 2 subcales: *enjoyment of competition* and "*contentiousness*"
Vertical Individualism (VI)	**TRIANDIS (1995)** - Conceptualized the horizontal and vertical individualism and collectivism framework for explaining culture, citing unpublished work by Chen, Meindl, and Hunt; and Daun (1991, 1992) as influences in developing this conceptualization. - Proposed a measure of culture comprised of four scales: *horizontal individualism, vertical individualism, horizontal collectivism,* and *vertical collectivism.* **SINGELIS, TRIANDIS, BHAWUK, & GELFAND (1995)** - Presented a shorter, validated version of the measure that Triandis (1995) developed. - Performed factor analysis and found that a four-factor model (i.e., separate factors for HI, VI, HC, and VC) had better fit than a two- or one-factor model. **TRIANDIS & GELFAND (1998)** - Used factor analysis to show that the four constructs are found in both an individualist culture (i.e., the United States) and a collectivist culture (i.e., Korea).

Table 1 (continued)

Measure	Brief History
	- Used a multi-trait, multi-method matrix to demonstrate convergent validity of the four scales, finding that horizontal and vertical individualism and collectivism showed high correlations across two measures (i.e., when vertical individualism is measured using Triandis's items as well as a scenario questionnaire developed in the current study, the correlation between the measures is high). - Provided construct validity evidence for the four scales by examining correlations with other relevant measures (interdependent vs. independent construal, right-wing authoritarianism, etc.); notably, vertical individualism correlated negatively with the Communal Orientation Scale (Clark, Ouellette, Powell, & Milberg, 1987). **CHIOU (2001)** Provided evidence for the measurement equivalence of the horizontal and vertical individualism and collectivism scales across countries (the United States, Argentina, and Taiwan).
Motivational Trait Questionnaire (MTQ)	**KANFER & HEGGESTAD (1997)** - Differentiated between motivational traits (individual differences in goal-directed behavior) and motivational skills (competencies used in goal-directed behavior). - Used Snow, Corno, and Jackson's (1996) trait construct clustering approach to search across literature and generate two overarching motivational trait categories: Achievement (approach-based motivational traits) and Anxiety (avoidance-based motivational traits). **HEGGESTAD & KANFER (2000)** - Created and validated the Motivational Traits Questionnaire, which measures three Achievement traits (*personal mastery, competitive excellence,* and *hard work*) and two Anxiety traits (*failure avoidance* and *achievement anxiety*); each trait contains several subscales. - Relevant to the current study is the *competitive excellence* trait, with two subscales: *other-referent goals* and *competition-seeking.* **KANFER & ACKERMAN (2000)** - Validated a short form of the MTQ (the original was 183 items/9 scales, and the short form was 48 items/6 scales).

Table 1 (continued)

Measure	Brief History
Hogan Personality Inventory (HPI)	**HOGAN (1982)** - Proposed the socioanalytic theory, which contradicts neo-Freudian personality ideas by focusing on normal rather than neurotic personality **HOGAN ASSESSMENT SYSTEMS, 1987** - Creation of the Hogan Personality Inventory (HPI), an instrument designed to assess 7 facets of normal personality: *Adjustment, Ambition, Sociability, Interpersonal Sensitivity, Prudence, Inquisitive,* and *Learning Approach.* - The *Ambition* subscale measures how energetic, competitive, and forceful a person is.

Table 2. Descriptive Statistics for All Variables at Time 1 (Study 1)

	Mean	SD	1	2	3	4
1. HCAS	2.68	0.92	0.92			
2. VI	2.90	0.90	.84**	.86		
3. MTQ	3.10	0.93	.80**	.86**	.93	
4. CI.R	3.31	1.12	.58**	.69**	.82**	.95
5. JAS	2.70	0.76	.53**	.57**	.66**	.63**
6. CQ	3.09	0.91	.79**	.81**	.85**	.68**
7. WOFO	3.39	1.01	.72**	.80**	.87**	.80**
8. SOQ	3.17	0.99	.81**	.84**	.89**	.82**
9. Extraversion	3.09	0.93	.20**	.25**	.31**	.37**
10. Agreeableness	3.78	0.73	-.41**	-.29**	-.21**	-.04
11. Conscientiousness	4.04	0.71	-.15**	.00	.10*	.24**
12. Openness	3.72	0.67	-0.02	.02	.12*	.17**
13. Neuroticism	2.50	0.91	.16**	.06	-.02	-.21**
14. Task Performance	4.43	0.65	-.27**	-.12**	-.02	.09*
15. OCB-I	4.03	0.75	-.09*	-.01	.07	.12**
16. OCB-O	4.08	0.69	-.33**	-.15**	-.07	.07
17. CWB-I	1.44	0.72	.35**	.25**	.16**	.02
18. CWB-O	1.53	0.65	.30**	.17**	.09*	-.07
19. Work Withdrawal	1.54	0.69	.30**	.16**	.09*	-.06
20. Job Satisfaction	3.73	0.97	.01	.11*	.16**	.25**
21. Job Engagement	3.64	0.89	.10*	.21**	.25**	.30**
22. Turnover Intentions	1.96	1.27	.11*	.06	.00	-.06
23. Positive Affectivity	3.45	0.89	.14**	.19**	.27**	.34**
24. Negative Affectivity	1.61	0.81	.25**	.14**	.04	-.14**
25. Social Desirability	6.41	3.55	-.21**	-.15**	-.09*	.04
26. Narcissism (NPI)	4.73	3.93	.55**	.51**	.48**	.39**
27. Grandiose Narcissism	2.54	1.05	.58**	.50**	.42**	.26**
28. Machiavellianism	2.96	0.87	.59**	.54**	.47**	.29**
29. Core Self-Evaluations	3.73	0.81	-.13**	.01	.10*	.30**
30. Masculinity	3.61	0.73	.23**	.34**	.43**	.53**
31. Femininity	3.75	0.66	-.22**	-.19**	-.12*	-.06
32. Age	34.88	10.06	-.20**	-.12**	-.09*	-.06
33. Sex (male = 1, female = 2)	1.45	0.50	-.19**	-.16**	-.15**	-.18**
34. Workload (hours per week)	42.10	16.58	.01	.05	.05	.06
35. Organizational Tenure (months)	64.75	69.04	-.08	-.05	-.05	-.02
36. Job Tenure (months)	52.69	55.73	-.02	.00	.00	.02

Note. N = 560-564; * $p < .05$, ** $p < .01$; Cronbach's alpha internal consistency reliabilities reported in diagonal; HCAS = Hypercompetitive Attitude Survey, VI = Vertical Individualism, MTQ = Motivational Traits Questionnaire, CI.R = Competitiveness Index-Revised, JAS = Jenkins Activity Survey, CQ = Competitiveness Questionnaire, WOFO = Work and Family Orientation Questionnaire, SOQ = Sport Orientation Questionnaire.

Table 2 (continued)

	5	6	7	8	9	10
1. HCAS						
2. VI						
3. MTQ						
4. CI.R						
5. JAS	.79					
6. CQ	.56**	.86				
7. WOFO	.61**	.80**	.87			
8. SOQ	.68**	.82**	.87**	.96		
9. Extraversion	.35**	.27**	.27**	.33**	.88	
10. Agreeableness	-.05	-.22**	-.12**	-.15**	.28**	.83
11. Conscientiousness	.24**	.05	.14**	.10*	.28**	.45**
12. Openness	.12*	.05	.13**	.11*	.19**	.25**
13. Neuroticism	-.14**	.01	-.08	-.08	-.46**	-.47**
14. Task Performance	.01	-.02	.03	-.08	.06	.38**
15. OCB-I	.11*	.08	.10*	.08	.24**	.51**
16. OCB-O	.04	-.09*	-.02	-.11*	.08	.44**
17. CWB-I	.08	.16**	.12*	.21**	.02	-.39**
18. CWB-O	-.03	.10*	.05	.11*	-.10*	-.38**
19. Work Withdrawal	-.04	.11*	.08	.11*	-.06	-.31**
20. Job Satisfaction	.21**	.13**	.21**	.18**	.39**	.42**
21. Job Engagement	.26**	.20**	.26**	.25**	.31**	.33**
22. Turnover Intentions	-.06	.02	-.03	-.01	-.10*	-.23**
23. Positive Affectivity	.33**	.23**	.31**	.32**	.49**	.39**
24. Negative Affectivity	-.06	.05	-.02	.04	-.20**	-.41**
25. Social Desirability	.03	-.16**	-.05	-.02	.17**	.44**
26. Narcissism (NPI)	.40**	.48**	.42**	.50**	.40**	-.27**
27. Grandiose Narcissism	.30**	.50**	.41**	.49**	.24**	-.28**
28. Machiavellianism	.26**	.55**	.45**	.45**	.04	-.44**
29. Core Self-Evaluations	.24**	.05	.14**	.15**	.51**	.49**
30. Masculinity	.47**	.36**	.43**	.46**	.55**	.22**
31. Femininity	-.11*	-.13**	-.06	-.10*	.18**	.65**
32. Age	-.02	-.09*	-.07	-.12*	.05	.19**
33. Sex (male = 1, female = 2)	-.13**	-.18**	-.16**	-.24**	-.07	.05
34. Workload (hours per week)	.13**	.02	.05	.06	.03	-.01
35. Organizational Tenure (months)	.04	-.01	-.04	-.05	.00	.08
36. Job Tenure (months)	.08	.04	-.01	.00	.06	.04

Note. N = 560-564; * $p < .05$, ** $p < .01$; Cronbach's alpha internal consistency reliabilities reported in diagonal; HCAS = Hypercompetitive Attitude Survey, VI = Vertical Individualism, MTQ = Motivational Traits Questionnaire, CI.R = Competitiveness Index-Revised, JAS = Jenkins Activity Survey, CQ = Competitiveness Questionnaire, WOFO = Work and Family Orientation Questionnaire, SOQ = Sport Orientation Questionnaire.

Table 2 (continued)

	11	12	13	14	15	16
1. HCAS						
2. VI						
3. MTQ						
4. CI.R						
5. JAS						
6. CQ						
7. WOFO						
8. SOQ						
9. Extraversion						
10. Agreeableness						
11. Conscientiousness	.87					
12. Openness	.30**	.82				
13. Neuroticism	-.51**	-.17**	.88			
14. Task Performance	.59**	.26**	-.25**	.85		
15. OCB-I	.39**	.30**	-.19**	.43**	.88	
16. OCB-O	.61**	.23**	-.31**	.66**	.50**	.77
17. CWB-I	-.37**	-.16**	.20**	-.50**	-.25**	-.47**
18. CWB-O	-.47**	-.13**	.30**	-.51**	-.25**	-.51**
19. Work Withdrawal	-.47**	-.15**	.29**	-.51**	-.24**	-.55**
20. Job Satisfaction	.43**	.19**	-.40**	.31**	.39**	.36**
21. Job Engagement	.41**	.28**	-.21**	.31**	.45**	.37**
22. Turnover Intentions	-.32**	-.02	.24**	-.31**	-.15**	-.30**
23. Positive Affectivity	.39**	.25**	-.48**	.17**	.37**	.22**
24. Negative Affectivity	-.56**	-.15**	.50**	-.50**	-.29**	-.43**
25. Social Desirability	.20**	.08	-.37**	-.01	.17**	.17**
26. Narcissism (NPI)	-.02	.08	-.16**	-.25**	-.16**	-.26**
27. Grandiose Narcissism	-.17**	-.02	-.03	-.33**	-.19**	-.40**
28. Machiavellianism	-.15**	-.03	.12*	-.16**	-.17**	-.28**
29. Core Self-Evaluations	.66**	.20**	-.76**	.38**	.29**	.42**
30. Masculinity	.55**	.26**	-.63**	.26**	.25**	.24**
31. Femininity	.28**	.25**	-.12**	.26**	.51**	.29**
32. Age	.30**	.04	-.09*	.28**	.16**	.28**
33. Sex (male = 1, female = 2)	.03	-.01	.22**	.08	.10*	.08
34. Workload (hours per week)	.04	.03	.00	.03	.05	.01
35. Organizational Tenure (months)	.22**	-.02	-.09*	.19**	.07	.16**
36. Job Tenure (months)	.22**	-.02	-.11*	.17**	.06	.13**

Note. N = 560-564; * $p < .05$, ** $p < .01$; Cronbach's alpha internal consistency reliabilities reported in diagonal; HCAS = Hypercompetitive Attitude Survey, VI = Vertical Individualism, MTQ = Motivational Traits Questionnaire, CI.R = Competitiveness Index-Revised, JAS = Jenkins Activity Survey, CQ = Competitiveness Questionnaire, WOFO = Work and Family Orientation Questionnaire, SOQ = Sport Orientation Questionnaire.

Table 2 (continued)

	17	18	19	20	21	22
1. HCAS						
2. VI						
3. MTQ						
4. CI.R						
5. JAS						
6. CQ						
7. WOFO						
8. SOQ						
9. Extraversion						
10. Agreeableness						
11. Conscientiousness						
12. Openness						
13. Neuroticism						
14. Task Performance						
15. OCB-I						
16. OCB-O						
17. CWB-I	.93					
18. CWB-O	.82**	.92				
19. Work Withdrawal	.69**	.80**	.90			
20. Job Satisfaction	-.24**	-.36**	-.29**	.92		
21. Job Engagement	-.14**	-.24**	-.20**	.64**	.83	
22. Turnover Intentions	.39**	.44**	.36**	-.59**	-.31**	.97
23. Positive Affectivity	.04	-.06	-.07	.44**	.42**	-.12*
24. Negative Affectivity	.53**	.57**	.54**	-.34**	-.23**	.31**
25. Social Desirability	-.13**	-.25**	-.19**	.23**	.18**	-.12**
26. Narcissism (NPI)	.33**	.23**	.21**	.08	.04	.05
27. Grandiose Narcissism	.36**	.31**	.34**	.02	.00	.14**
28. Machiavellianism	.28**	.30**	.24**	-.11*	-.07	.16**
29. Core Self-Evaluations	-.27**	-.40**	-.38**	.58**	.37**	-.36**
30. Masculinity	-.09*	-.20**	-.19**	.44**	.36**	-.20**
31. Femininity	-.24**	-.19**	-.13**	.29**	.29**	-.13**
32. Age	-.15**	-.17**	-.16**	.12**	.08	-.15**
33. Sex (male = 1, female = 2)	-.13**	-.10*	-.04	-.03	.05	-.01
34. Workload (hours per week)	-.03	-.03	-.04	.01	.04	-.02
35. Organizational Tenure (months)	-.10*	-.16**	-.13**	.13**	.07	-.25**
36. Job Tenure (months)	-.08	-.13**	-.11*	.12**	.09*	-.21**

Note. N = 560-564; * $p < .05$, ** $p < .01$; Cronbach's alpha internal consistency reliabilities reported in diagonal; HCAS = Hypercompetitive Attitude Survey, VI = Vertical Individualism, MTQ = Motivational Traits Questionnaire, CI.R = Competitiveness Index-Revised, JAS = Jenkins Activity Survey, CQ = Competitiveness Questionnaire, WOFO = Work and Family Orientation Questionnaire, SOQ = Sport Orientation Questionnaire.

Table 2 (continued)

	23	24	25	26	27	28
1. HCAS						
2. VI						
3. MTQ						
4. CI.R						
5. JAS						
6. CQ						
7. WOFO						
8. SOQ						
9. Extraversion						
10. Agreeableness						
11. Conscientiousness						
12. Openness						
13. Neuroticism						
14. Task Performance						
15. OCB-I						
16. OCB-O						
17. CWB-I						
18. CWB-O						
19. Work Withdrawal						
20. Job Satisfaction						
21. Job Engagement						
22. Turnover Intentions						
23. Positive Affectivity	.93					
24. Negative Affectivity	-.16**	.95				
25. Social Desirability	.04**	.24**	.82			
26. Narcissism (NPI)	.23**	.14**	-.05	.84		
27. Grandiose Narcissism	.18**	.21**	-.05	.63**	.90	
28. Machiavellianism	.04	.24**	-.29**	.53**	.59**	.87
29. Core Self-Evaluations	.55**	-.58**	.32**	.14**	-.02	-.16**
30. Masculinity	.57**	-.39**	.25**	.41**	.24**	.14**
31. Femininity	.32**	-.21**	.28**	-.23**	-.20**	-.30**
32. Age	.08	-.17**	.10*	-.22**	-.22**	-.24**
33. Sex (male = 1, female = 2)	-.11*	.02	-.03	-.20**	-.23**	-.21**
34. Workload (hours per week)	.03	-.05	.00	-.03	.01	-.02
35. Organizational Tenure (months)	.00	-.13**	.03	-.06	-.10*	-.06
36. Job Tenure (months)	.01	-.15**	.02	-.01	-.04	-.01

Note. N = 560-564; * $p < .05$, ** $p < .01$; Cronbach's alpha internal consistency reliabilities reported in diagonal; HCAS = Hypercompetitive Attitude Survey, VI = Vertical Individualism, MTQ = Motivational Traits Questionnaire, CI.R = Competitiveness Index-Revised, JAS = Jenkins Activity Survey, CQ = Competitiveness Questionnaire, WOFO = Work and Family Orientation Questionnaire, SOQ = Sport Orientation Questionnaire.

Table 2 (continued)

	29	30	31	32	33	34	35	36
1. HCAS								
2. VI								
3. MTQ								
4. CI.R								
5. JAS								
6. CQ								
7. WOFO								
8. SOQ								
9. Extraversion								
10. Agreeableness								
11. Conscientiousness								
12. Openness								
13. Neuroticism								
14. Task Performance								
15. OCB-I								
16. OCB-O								
17. CWB-I								
18. CWB-O								
19. Work Withdrawal								
20. Job Satisfaction								
21. Job Engagement								
22. Turnover Intentions								
23. Positive Affectivity								
24. Negative Affectivity								
25. Social Desirability								
26. Narcissism (NPI)								
27. Grandiose Narcissism								
28. Machiavellianism								
29. Core Self-Evaluations	.91							
30. Masculinity	.67**	.81						
31. Femininity	.23**	.13**	.81					
32. Age	.14**	.13**	.10*	-				
33. Sex (male = 1, female = 2)	-.09*	-.19**	.20**	.06	-			
34. Workload (hours/week)	.02	.03	-.05	.07	.03	-		
35. Org Tenure (months)	.15**	.10*	-.01	.46**	.04	.06	-	
36. Job Tenure (months)	.16**	.15**	-.03	.44**	.02	.05	.82**	-

Note. N = 560-564; * $p < .05$, ** $p < .01$; Cronbach's alpha internal consistency reliabilities reported in diagonal; HCAS = Hypercompetitive Attitude Survey, VI = Vertical Individualism, MTQ = Motivational Traits Questionnaire, CI.R = Competitiveness Index-Revised, JAS = Jenkins Activity Survey, CQ = Competitiveness Questionnaire, WOFO = Work and Family Orientation Questionnaire, SOQ = Sport Orientation Questionnaire.

Table 3. Fit Indices for CFA Models (Study 1)

	CFI	TLI	RMSEA	RMSEA CI-90	SRMR	Chi-Sq	df
Model 1A: Unidimensional	.679	.670	.089	[.088, .091]	.085	16114.13	2,925
Model 2A: Oblique 8-Factor	.733	.723	.082	[.081, .083]	.087	13877.67	2,897
Model 3A: Hierarchical	.723	.751	.083	[.082, .085]	.089	14299.68	2,917
Model 4A: Bifactor	.791	.779	.073	[.072, .075]	.074	11447.22	2,848
Model 1B: Unidimensional [item parceling]	.806	.789	.139	[.135, .143]	.064	3557.78	299
Model 2B: Oblique 8-Factor [item parceling]	.897	.876	.106	[.102, .111]	.057	2000.92	271
Model 3B: Hierarchical [item parceling]	.876	.861	.113	[.108, .117]	.067	2372.66	291
Model 4B: Bifactor [item parceling]	.916	.901	.095	[.091, .100]	.048	1686.49	275

Note. Models 1A – 4A do not use item parceling; Models 1B – 4B use item parceling; CFI = comparative fit index; TLI = Tucker-Lewis index; RMSEA = root mean square error of approximation; RMSEA CI-90 = lower and upper bounds, respectively, of the 90% confidence interval around the RMSEA value; SRMR = standardized root mean square residual.

Table 4. Standardized Parameter Estimates for Model 4A: Bifactor Model Without Item Parceling (Study 1)

	g	HCAS	VI	MTQ	CI.R	JAS	CQ	WOFO	SOQ
AVERAGE ITEM LOADING ON g, ACROSS ALL MEASURES = .67 (45%)									
AVERAGE ITEM LOADING ON GROUP FACTOR, ACROSS ALL MEASURES = .30 (9%)									
HCAS average item loading	**.58 (34%)**	**.38 (15%)**							
HCAS_1: Winning in competition makes me feel more powerful as a person.	.69 (47%)	.22 (5%)							
HCAS_2: I find myself being competitive even in situations which do not call for competition.	.70 (49%)	.36 (13%)							
HCAS_3: I compete with others even if they are not competing with me.	.70 (48%)	.39 (15%)							
HCAS_4: When my competitors receive rewards for their accomplishments, I feel envy.	.50 (25%)	.51 (26%)							
HCAS_5: I find myself turning a friendly game or activity into a serious contest or conflict.	.61 (37%)	.53 (28%)							
HCAS_6: It's a dog-eat-dog world. If you don't get the better of others, they will surely get the better of you.	.61 (37%)	.28 (8%)							
HCAS_7: If I can disturb my opponent in some way in order to get the edge in competition, I will do so.	.48 (23%)	.48 (23%)							
HCAS_8: I really feel down when I lose in athletic competition.	.52 (27%)	.44 (19%)							
HCAS_9: I like the challenge of getting someone to like me who is already going with someone else.	.48 (23%)	.51 (26%)							
HCAS_10: I can't stand to lose an argument.	.47 (22%)	.31 (10%)							
HCAS_11: Failure or loss in competition makes me feel less worthy as a person.	.40 (16%)	.55 (30%)							

Table 4 (continued)

	g	HCAS	VI	MTQ	CI.R	JAS	CQ	WOFO	SOQ
HCAS_12: People who quit during competition are weak.	.60 (36%)	.27 (7%)							
HCAS_13: Competition inspires me to excel.	.81 (65%)	-.13 (2%)							
VI average item loading	**.62 (39%)**		**.25 (6%)**						
VI_1: It annoys me when other people perform better than I do.	.53 (28%)		.52 (27%)						
VI_2: Competition is the law of nature.	.66 (43%)		.15 (2%)						
VI_3: When another person does better than I do, I get tense and aroused.	.55 (30%)		.57 (32%)						
VI_4: Without competition, it is not possible to have a good society.	.52 (27%)		.21 (4%)						
VI_5: Winning is everything.	.61 (37%)		.23 (5%)						
VI_6: It is important that I do my job better than others.	.70 (49%)		.17 (3%)						
VI_7: I enjoy working in situations involving competition with others.	.84 (71%)		-.11 (1%)						
VI_8: Some people emphasize winning; I'm not one of them. [R]	.56 (32%)		-.07 (1%)						
MTQ average item loading	**.69 (48%)**			**.24 (6%)**					
MTQ-ORG_1: It really upsets me when someone does something better than I do.	.50 (25%)			.43 (18%)					
MTQ-ORG_2: I tend to put extra effort into tasks that involve competition with others.	.72 (52%)			.08 (1%)					

Table 4 (continued)

	g	HCAS	VI	MTQ	CI.R	JAS	CQ	WOFO	SOQ
MTQ-ORG_3: It is important for me to outperform my co-workers.	.76 (57%)			.24 (6%)					
MTQ-ORG_4: Whether or not I feel good about my performance depends on how it compares to the performance of others.	.62 (38%)			.39 (15%)					
MTQ-ORG_5: I am motivated to do things better than others.	.74 (54%)			.16 (3%)					
MTQ-ORG_6: I strive to do my job better than the people I work with.	.71 (51%)			.22 (5%)					
MTQ-ORG_7: I compare my performance to that of others.	.63 (40%)			.33 (11%)					
MTQ-CS_1: I perform best when I compete with others.	.83 (69%)			-.05 (0%)					
MTQ-CS_2: I am not a competitive person. [R]	.76 (57%)			-.37 (14%)					
MTQ-CS_3: I try to avoid competitive situations. [R]	.67 (45%)			-.49 (24%)					
MTQ-CS_4: I would rather cooperate than compete. [R]	.58 (34%)			-.27 (7%)					
MTQ-CS_5: I like to turn things into a competition.	.78 (61%)			.02 (0%)					
MTQ-CS_6: Even in non-competitive situations, I find ways to compete with others.	.71 (51%)			.13 (2%)					
CI-R average item loading	**.75 (56%)**				**.38 (15%)**				
CI-R_1: I like competition.	.87 (75%)				.27 (7%)				
CI-R_2: I find competitive situations unpleasant. [R]	.59 (34%)				.68 (46%)				

Table 4 (continued)

	g	HCAS	VI	MTQ	CI.R	JAS	CQ	WOFO	SOQ
CI-R_3: I don't like competing against other people. [R]	.67 (45%)				.62 (38%)				
CI-R_4: I enjoy competing against an opponent.	.83 (69%)				.25 (6%)				
CI-R_5: I try to avoid competing with others. [R]	.66 (43%)				.59 (35%)				
CI-R_6: I get satisfaction from competing with others.	.87 (75%)				.23 (5%)				
CI-R_7: I dread competing against other people. [R]	.54 (29%)				.65 (43%)				
CI-R_8: I am a competitive individual.	.88 (77%)				.13 (2%)				
CI-R_9: I often try to outperform others.	.81 (66%)				-.01 (0%)				
JAS average item loading	**.55 (30%)**					**.45 (20%)**			
JAS_1: When you were younger, did most people consider you to be hard-driving and competitive?	.38 (14%)					.36 (13%)			
JAS_2: Nowadays, do you consider yourself to be hard-driving and competitive?	.55 (30%)					.63 (40%)			
JAS_3: Would your spouse (or closest friend) rate you as hard-driving and competitive?	.52 (27%)					.67 (45%)			
JAS_4: Would people who know you well agree that you enjoy a “contest” (competition) and try hard to win?	.76 (58%)					.13 (2%)			
CQ average item loading	**.61 (37%)**						**.28 (8%)**		
CQ_1: I perform better when I am competing against someone rather than when I am the only one striving for a goal.	.74 (54%)						.17 (3%)		

Table 4 (continued)

	g	HCAS	VI	MTQ	CI.R	JAS	CQ	WOFO	SOQ
CQ_2: I do not feel that winning is important in both work and games. [R]	.55 (30%)						-.03 (0%)		
CQ_3: When I win an award or game it means that I am the best compared to everyone else who was playing. It is only fair that the best person win the game.	.61 (37%)						.38 (15%)		
CQ_4: In school, I always like to be the first one finished with a test.	.49 (24%)						.29 (9%)		
CQ_5: I have always wanted to be better than others.	.70 (48%)						.31 (10%)		
CQ_6: When nominated for an award, I focus on how much better or worse the other candidates' qualifications are as compared to mine.	.54 (29%)						.40 (16%)		
CQ_7: I would want an A because that means that I did better than other people.	.64 (41%)						.47 (22%)		
CQ_8: Because it is important that a winner is decided, I do not like to leave a game unfinished.	.63 (39%)						.21 (4%)		
WOFO average item loading	**.77 (59%)**							**.20 (4%)**	
WOFO_1: I enjoy working in situations involving competition with others.	.83 (69%)							.03 (0%)	
WOFO_2: It is important to me to perform better than others on a task.	.76 (57%)							.32 (10%)	
WOFO_3: I feel that winning is both important in work and games.	.76 (57%)							.22 (5%)	
WOFO_4: I try harder when I am in competition with other people.	.73 (53%)							.23 (5%)	
SOQ average item loading	**.74 (55%)**								**.20 (4%)**

Table 4 (continued)

	g	HCAS	VI	MTQ	CI.R	JAS	CQ	WOFO	SOQ
SOQ-C_1: I am a competitive person.	.87 (75%)								.16 (3%)
SOQ-C_2: I try my hardest to win.	.77 (60%)								.13 (2%)
SOQ-C_3: I am a determined competitor.	.82 (67%)								.16 (2%)
SOQ-C_4: I am determined to be the best every time I compete.	.77 (59%)								.09 (1%)
SOQ-C_5: I look forward to competing.	.85 (72%)								.37 (14%)
SOQ-C_6: I thrive on competition.	.82 (67%)								.24 (6%)
SOQ-C_7: My goal is to be the best athlete possible.	.63 (39%)								.13 (2%)
SOQ-C_8: I enjoy competing against others.	.86 (74%)								.31 (9%)
SOQ-C_9: I want to be successful in sports.	.55 (30%)								.07 (1%)
SOQ-C_10: I work hard to be successful in sports.	.56 (31%)								.10 (1%)
SOQ-C_11: The best test of my ability is competing against others.	.81 (66%)								.05 (0%)
SOQ-C_12: I look forward to the opportunity to test my skills in competition.	.86 (73%)								.28 (8%)
SOQ-C_13: I perform my best when I am competing against an opponent.	.83 (68%)								.10 (1%)
SOQ-W_1: Winning is important.	.73 (53%)								-.18 (3%)

Table 4 (continued)

	g	HCAS	VI	MTQ	CI.R	JAS	CQ	WOFO	SOQ
SOQ-W_2: Scoring more points than my opponent is very important to me.	.82 (67%)								-.16 (2%)
SOQ-W_3: I hate to lose.	.67 (45%)								-.34 (12%)
SOQ-W_4: The only time I am satisfied is when I win.	.62 (39%)								-.28 (8%)
SOQ-W_5: Losing upsets me.	.57 (32%)								-.42 (18%)
SOQ-W_6: I have the most fun when I win.	.70 (49%)								-.19 (4%)

Note. The percent of variance accounted for in each item by a given factor (i.e., the squared standardized factor loading) appears in parentheses below the loading; latent factor variance for the WOFO group factor was fixed to .001 in order to achieve model identification; HCAS = Hypercompetitive Attitude Survey, VI = Vertical Individualism, MTQ = Motivational Traits Questionnaire (ORG = other-referenced goals; CS = competition seeking), CI.R = Competitiveness Index-Revised, JAS = Jenkins Activity Survey, CQ = Competitiveness Questionnaire, WOFO = Work and Family Orientation Questionnaire, SOQ = Sport Orientation Questionnaire (C = competitiveness; W = win).

Table 5. Standardized Parameter Estimates for Item Parceling Models 1B - 4B (Study 1)

	g	HCAS	VI	MTQ	CI.R	JAS	CQ	WOFO	SOQ
Model 1B: Unidimensional									
HCAS.p1 (HCAS_1, HCAS_4, HCAS_7, HCAS_8)	.73								
HCAS.p2 (HCAS_2, HCAS_5, HCAS_6, HCAS_10, HCAS_11)	.77								
HCAS.p3 (HCAS_3, HCAS_9, HCAS_13)	.86								
VI.p1 (VI_3, VI_6)	.75								
VI.p2 (VI_1, VI_4, VI_5)	.74								
VI.p3 (VI_2, VI_7, VI_8)	.86								
MTQ.p1 (MTQ_ORG_3, MTQ_ORG_6, MTQ_CS_4, MTQ_CS_5, MTQ_CS_6)	.89								
MTQ.p2 (MTQ_ORG_7, MTQ_CS_1, MTQ_CS_3)	.89								
MTQ.p3 (MTQ_ORG_1, MTQ_ORG_2, MTQ_ORG_5, MTQ_CS_2)	.88								
CI.R.p1 (CI.R_2, CI.R_5, CI.R_9)	.79								
CI.R.p2 (CI.R_3, CI.R_4, CI.R_7)	.75								
CI.R.p3 (CI.R_1, CI.R_6, CI.R_8)	.91								
JAS_1	.38								
JAS_2	.56								
JAS_3	.52								
JAS_4	.76								
CQ.p1 (CQ_3, CQ_4, CQ_5)	.76								
CQ.p2 (CQ_2, CQ_6, CQ_8)	.76								
CQ.p3 (CQ_1, CQ_7)	.79								
WOFO_1	.82								
WOFO_2	.76								
WOFO_3	.77								
WOFO_4	.72								
SOQ.p1 (SOQ.C_2, SOQ.C_6, SOQ.C_7, SOQ.C_8, SOQ.W_1, SOQ.W_3)	.94								
SOQ.p2 (SOQ.C_3, SOQ.C_4, SOQ.C_5, SOQ.C_9, SOQ.C_10, SOQ.W_2)	.90								
SOQ.p3 (SOQ.C_1, SOQ.C_11, SOQ.C_12, SOQ.C_13, SOQ.W_4, SOQ.W_5, SOQ.W_6)	.95								
Model 2B: Oblique 8-Factor									
HCAS.p1 (HCAS_1, HCAS_4, HCAS_7, HCAS_8)		.88							
HCAS.p2 (HCAS_2, HCAS_5, HCAS_6, HCAS_10, HCAS_11)		.91							

Table 5 (continued)

	g	HCAS	VI	MTQ	CI.R	JAS	CQ	WOFO	SOQ
HCAS.p3 (HCAS_3, HCAS_9, HCAS_13)		.90							
VI.p1 (VI_3, VI_6)			.82						
VI.p2 (VI_1, VI_4, VI_5)			.81						
VI.p3 (VI_2, VI_7, VI_8)			.82						
MTQ.p1 (MTQ_ORG_3, MTQ_ORG_6, MTQ_CS_4, MTQ_CS_5, MTQ_CS_6)				.90					
MTQ.p2 (MTQ_ORG_7, MTQ_CS_1, MTQ_CS_3)				.90					
MTQ.p3 (MTQ_ORG_1, MTQ_ORG_2, MTQ_ORG_5, MTQ_CS_2)				.90					
CI.R.p1 (CI.R_2, CI.R_5, CI.R_9)					.92				
CI.R.p2 (CI.R_3, CI.R_4, CI.R_7)					.91				
CI.R.p3 (CI.R_1, CI.R_6, CI.R_8)					.94				
JAS_1						.51			
JAS_2						.70			
JAS_3						.67			
JAS_4						.82			
CQ.p1 (CQ_3, CQ_4, CQ_5)							.83		
CQ.p2 (CQ_2, CQ_6, CQ_8)							.80		
CQ.p3 (CQ_1, CQ_7)							.85		
WOFO_1								.83	
WOFO_2								.78	
WOFO_3								.78	
WOFO_4								.74	
SOQ.p1 (SOQ.C_2, SOQ.C_6, SOQ.C_7, SOQ.C_8, SOQ.W_1, SOQ.W_3)									.96
SOQ.p2 (SOQ.C_3, SOQ.C_4, SOQ.C_5, SOQ.C_9, SOQ.C_10, SOQ.W_2)									.93
SOQ.p3 (SOQ.C_1, SOQ.C_11, SOQ.C_12, SOQ.C_13, SOQ.W_4, SOQ.W_5, SOQ.W_6)									.95
Factor Correlations									
HCAS									
VI		.95							
MTQ		.87	.97						
CI.R		.64	.77	.89					
JAS		.68	.75	.83	.81				

Table 5 (continued)

	g	HCAS	VI	MTQ	CI.R	JAS	CQ	WOFO	SOQ
CQ		.89	.94	.95	.76	.73			
WOFO		.81	.93	.97	.90	.81	.92		
SOQ		.86	.92	.94	.87	.85	.90	.95	
Model 3B: Hierarchical									
HCAS.p1 (HCAS_1, HCAS_4, HCAS_7, HCAS_8)		.86							
HCAS.p2 (HCAS_2, HCAS_5, HCAS_6, HCAS_10, HCAS_11)		.89							
HCAS.p3 (HCAS_3, HCAS_9, HCAS_13)		.92							
VI.p1 (VI_3, VI_6)			.78						
VI.p2 (VI_1, VI_4, VI_5)			.76						
VI.p3 (VI_2, VI_7, VI_8)			.87						
MTQ.p1 (MTQ_ORG_3, MTQ_ORG_6, MTQ_CS_4, MTQ_CS_5, MTQ_CS_6)				.90					
MTQ.p2 (MTQ_ORG_7, MTQ_CS_1, MTQ_CS_3)				.90					
MTQ.p3 (MTQ_ORG_1, MTQ_ORG_2, MTQ_ORG_5, MTQ_CS_2)				.90					
CI.R.p1 (CI.R_2, CI.R_5, CI.R_9)					.93				
CI.R.p2 (CI.R_3, CI.R_4, CI.R_7)					.92				
CI.R.p3 (CI.R_1, CI.R_6, CI.R_8)					.93				
JAS_1						.53			
JAS_2						.76			
JAS_3						.74			
JAS_4						.76			
CQ.p1 (CQ_3, CQ_4, CQ_5)							.82		
CQ.p2 (CQ_2, CQ_6, CQ_8)							.81		
CQ.p3 (CQ_1, CQ_7)							.84		
WOFO_1								.82	
WOFO_2								.79	
WOFO_3								.79	
WOFO_4								.74	
SOQ.p1 (SOQ.C_2, SOQ.C_6, SOQ.C_7, SOQ.C_8, SOQ.W_1, SOQ.W_3)									.96
SOQ.p2 (SOQ.C_3, SOQ.C_4, SOQ.C_5, SOQ.C_9, SOQ.C_10, SOQ.W_2)									.93
SOQ.p3 (SOQ.C_1, SOQ.C_11, SOQ.C_12, SOQ.C_13, SOQ.W_4, SOQ.W_5, SOQ.W_6)									.95
Second-Order Loadings onto *g*		.89	.99	.99	.87	.79	.94	.98	.96

Table 5 (continued)

	g	HCAS	VI	MTQ	CI.R	JAS	CQ	WOFO	SOQ
Model 4B: Bifactor									
HCAS.p1 (HCAS_1, HCAS_4, HCAS_7, HCAS_8)	.72	.52							
HCAS.p2 (HCAS_2, HCAS_5, HCAS_6, HCAS_10, HCAS_11)	.76	.52							
HCAS.p3 (HCAS_3, HCAS_9, HCAS_13)	.85	.31							
VI.p1 (VI_3, VI_6)	.75		.25						
VI.p2 (VI_1, VI_4, VI_5) †	.73		.68						
VI.p3 (VI_2, VI_7, VI_8)	.86		.05						
MTQ.p1 (MTQ_ORG_3, MTQ_ORG_6, MTQ_CS_4, MTQ_CS_5, MTQ_CS_6)	.89			.10					
MTQ.p2 (MTQ_ORG_7, MTQ_CS_1, MTQ_CS_3)	.89			.17					
MTQ.p3 (MTQ_ORG_1, MTQ_ORG_2, MTQ_ORG_5, MTQ_CS_2)	.89			.18					
CI.R.p1 (CI.R_2, CI.R_5, CI.R_9)	.79				.50				
CI.R.p2 (CI.R_3, CI.R_4, CI.R_7)	.74				.64				
CI.R.p3 (CI.R_1, CI.R_6, CI.R_8)	.90				.27				
JAS_1	.38					.36			
JAS_2	.55					.63			
JAS_3	.52					.67			
JAS_4	.75					.14			
CQ.p1 (CQ_3, CQ_4, CQ_5)	.76						.41		
CQ.p2 (CQ_2, CQ_6, CQ_8)	.76						.19		
CQ.p3 (CQ_1, CQ_7)	.79						.29		
WOFO_1	.82							-.06	
WOFO_2†	.77							.64	
WOFO_3	.77							.09	
WOFO_4	.72							.11	
SOQ.p1 (SOQ.C_2, SOQ.C_6, SOQ.C_7, SOQ.C_8, SOQ.W_1, SOQ.W_3)	.93								.27
SOQ.p2 (SOQ.C_3, SOQ.C_4, SOQ.C_5, SOQ.C_9, SOQ.C_10, SOQ.W_2)	.89								.32
SOQ.p3 (SOQ.C_1, SOQ.C_11, SOQ.C_12, SOQ.C_13, SOQ.W_4, SOQ.W_5, SOQ.W_6)	.94								.14

Note. † Indicator uniquenesses for indicators VI.p2 and WOFO_2 were constrained to zero in order to achieve model identification; HCAS = Hypercompetitive Attitude Survey, VI = Vertical Individualism, MTQ = Motivational Traits Questionnaire (ORG = other-referenced goals; CS = competition seeking), CI.R = Competitiveness Index-Revised, JAS = Jenkins Activity Survey, CQ = Competitiveness Questionnaire, WOFO = Work and Family Orientation Questionnaire, SOQ = Sport Orientation Questionnaire (C = competitiveness; W = win).

Table 6. *Competitive Personality Scale* (CPS) Item Diagnostic Information (Study 1)

Item	Source	Loading (λ)	Intercept	item retest *r* (T1-T2)	item-total *r* (T1)	item-total *r* (T2)	correlations with related variables (T1)						
							BFI-E	Job.Eng	PA	NPI	G.Nar	Mach	PAQ-M
I thrive on competition.	SOQ-C	.82	2.23	.71	.88	.89	.35	.21	.32	.48	.40	.31	.43
I look forward to competing.	SOQ-C	.85	2.41	.80	.90	.89	.36	.26	.32	.43	.37	.31	.46
I enjoy working in situations involving competition with others.	VI	.84	2.51	.71	.89	.88	.34	.23	.31	.40	.36	.32	.46
I often try to outperform others.	CI-R	.81	2.80	.71	.84	.83	.22	.21	.22	.40	.35	.41	.39
I feel that winning is both important in work and games.	WOFO	.76	2.87	.64	.79	.84	.23	.23	.28	.40	.40	.43	.32

Note. Loadings and intercepts for competitive personality general factor (*g*) from Model 4A: bifactor model without item parceling; Cronbach's alpha for CPS = .91 at time 1 and .92 at time 2; T1 = time 1, T2 = time 2; SOQ-C = Sport Orientation Questionnaire-Competitiveness subscale, VI = Vertical Individualism Scale, CI-R = Competitiveness Index Revised, WOFO = Work and Family Orientation Questionnaire, BFI-E = Big Five Inventory Extraversion Scale, Job.Eng = Job Engagement, PA = Positive Affectivity, NPI = Narcissistic Personality Inventory, G.Nar = Grandiose Narcissism, Mach = Machiavellianism, PAQ-M = Personal Attributes Questionnaire Masculinity Scale.

Table 7. *Competitive Personality Scale* (CPS) Correlations with Other Study Variables at Time 2 (Study 1)

	r
Competitive Personality Measures	
HCAS	.78**
VI	.85**
MTQ	.90**
CI.R	.89**
JAS	.68**
CQ	.82**
WOFO	.93**
SOQ	.94**
Correlates and Outcomes	
Extraversion	.38**
Agreeableness	-.06
Conscientiousness	.19**
Openness	.11*
Neuroticism	-.21**
Task Performance	-.01
OCB-I	.09
OCB-O	.00
CWB-I	.14**
CWB-O	.04
Work Withdrawal	.06
Job Satisfaction	.26**
Job Engagement	.34**
Turnover Intentions	-.06
Positive Affectivity	.37**
Negative Affectivity	-.02
Social Desirability	.05
Narcissism (NPI)	.46**
Grandiose Narcissism	.44**
Machiavellianism	.43**
Core Self-Evaluations	.32**
Masculinity	.52**
Femininity	-.08
Age	-.18**
Sex (male = 1, female = 2)	-.10*
Workload (hours per week)	-.01
Organizational Tenure (months)	-.04
Job Tenure (months)	-.02

Note. N = 417-421; *p < .05, **p < .01; HCAS = Hypercompetitive Attitude Survey, VI = Vertical Individualism, MTQ = Motivational Traits Questionnaire, CI.R = Competitiveness Index-Revised, JAS = Jenkins Activity Survey, CQ = Competitiveness Questionnaire, WOFO = Work and Family Orientation Questionnaire, SOQ = Sport Orientation Questionnaire.

Table 8. Correlational Results for Nomological Network of Competitive Personality (Study 1)

	Time 1 Competitive Personality								
Time 2 Correlates and Outcomes	HCAS	VI	MTQ	CI.R	JAS	CQ	WOFO	SOQ	CPS
Personality and Individual Differences									
Extraversion	.20**	.24**	.30**	.39**	.37**	.29**	.30**	.35**	.38**
Agreeableness	-.33**	-.24**	-.18**	-.02	.02	-.19**	-.09	-.12*	-.07
Conscientiousness	-.13*	.03	.12*	.28**	.26**	.10	.18**	.12*	.15**
Openness	-.04	.03	.09	.14**	.08	.04	.12*	.08	.11*
Neuroticism	.11*	.04	-.06	-.26**	-.17**	-.05	-.14**	-.13*	-.18**
Social Desirability	-.15**	-.14*	-.04	.06	.07	-.09	.00	.02	.05
Narcissism (NPI)	.53**	.48**	.44**	.35**	.33**	.45**	.37**	.48**	.44**
Grandiose Narcissism	.53**	.46**	.39**	.23**	.24**	.45**	.38**	.46**	.42**
Machiavellianism	.55**	.52**	.44**	.24**	.24**	.49**	.41**	.42**	.38**
Core Self-Evaluations	-.05	.09	.20**	.39**	.30**	.17**	.27**	.23**	.27**
Masculinity	.22**	.35**	.41**	.54**	.46**	.37**	.46**	.46**	.50**
Femininity	-.19**	-.14**	-.11*	-.06	-.01	-.14*	-.07	-.08	-.07
Job Behavior and Job Performance									
Task Performance	-.27**	-.10*	-.04	.08	.05	-.02	.00	-.07	-.06
OCB-I	-.08	.00	.05	.10*	.11*	.05	.08	.07	.07
OCB-O	-.27**	-.12*	-.04	.09	.06	-.06	.03	-.07	-.03
CWB-I	.36**	.24**	.19**	.05	.06	.19**	.12*	.22**	.18**
CWB-O	.30**	.16**	.09	-.06	-.04	.10*	.03	.11*	.08
Work Withdrawal	.27**	.14**	.08	-.06	-.02	.09	.04	.11*	.08
Job Attitudes and Emotions									
Job Satisfaction	.02	.13*	.16**	.25**	.25**	.14**	.21**	.20**	.22**
Job Engagement	.11*	.21**	.26**	.31**	.31**	.20**	.29**	.28**	.28**
Turnover Intentions	.10	.04	-.02	-.09	-.10	.00	-.03	-.03	-.03
Positive Affectivity	.17**	.21**	.28**	.35**	.35**	.25**	.32**	.35**	.36**
Negative Affectivity	.28**	.14**	.06	-.13*	-.04	.06	-.01	.06	.02
Demographics									
Age	-.17**	-.13*	-.12*	-.15**	-.10*	-.18**	-.14**	-.23**	-.19**
Sex (male = 1, female = 2)	-.21**	-.14**	-.11*	-.06	-.02	-.09	-.08	-.12*	-.12*
Workload (hours per week)	-.03	.02	.06	.07	.10	.01	.04	.02	.05
Organizational Tenure (months)	-.06	-.04	-.03	-.06	.05	.02	-.03	-.03	-.07
Job Tenure (months)	-.05	-.05	-.04	-.04	.05	.02	-.05	-.03	-.07

Note. N = 417-421; *p < .05, **p < .01; HCAS = Hypercompetitive Attitude Survey, VI = Vertical Individualism, MTQ = Motivational Traits Questionnaire, CI.R = Competitiveness Index-Revised, JAS = Jenkins Activity Survey, CQ = Competitiveness Questionnaire, WOFO = Work and Family Orientation Questionnaire, SOQ = Sport Orientation Questionnaire, CPS = Competitive Personality Scale.

Table 9. Meta-Analytic Results for Nomological Network of Competitive Personality (Study 2)

	N	*k*	r_m	SD_r	ρ	SD_ρ	80% CV		95% CI	
Personality and Individual Differences										
Openness	2,989	13	.22	.21	.28	.28	-.07	.64	.11	.45
Conscientiousness	2,721	12	.10	.11	.12	.12	-.03	.27	.03	.21
Extraversion	4,982	22	.15	.20	.19	.25	-.13	.51	.07	.30
Agreeableness	1,622	10	-.11	.27	-.18	.34	-.62	.26	-.42	.05
Neuroticism	5,327	19	-.03	.15	-.03	.18	-.26	.20	-.12	.06
Machiavellianism	1,152	4	.42	.08	.54	.08	.43	.65	.38	.69
Narcissism	2,078	8	.43	.07	.53	.06	.45	.61	.44	.62
Intelligence/Cognitive Ability	4,403	14	.05	.09	.07	.10	-.06	.20	.00	.13
Locus of Control (external)	1,143	3	-.04	.06	-.05	.06	-.13	.02	-.15	.04
Self-Efficacy	4,537	14	.23	.12	.29	.12	.13	.44	.21	.36
Self-Esteem	5,764	14	.06	.12	.07	.13	-.10	.25	.00	.15
Social Desirability	6,523	22	-.09	.22	-.12	.29	-.48	.25	-.24	.01
Job Behavior and Job Performance										
Academic Performance	3,591	15	.09	.09	.11	.09	-.01	.22	.05	.16
Job Performance - subjective	2,685	18	.15	.19	.19	.22	-.09	.48	.09	.30
Job Performance - objective	1,367	9	.17	.16	.19	.16	-.02	.40	.07	.31
CWB	1,481	7	.20	.12	.25	.12	.10	.40	.14	.36
Work Withdrawal	949	4	.07	.04	.12	.00	.12	.12	.02	.23
Dominating Conflict Management Style	1,315	3	.37	.05	.49	.03	.45	.53	.34	.64
Integrating Conflict Management Style	1,315	3	-.05	.02	-.06	.00	-.06	-.06	-.09	-.03
Obliging Conflict Management Style	1,315	3	.02	.11	.03	.14	-.15	.20	-.14	.20
Job Attitudes and Emotions										
Job Satisfaction	2,818	11	.01	.09	.02	.10	-.10	.14	-.06	.10
Organizational Commitment	1,957	7	.03	.12	.05	.14	-.13	.23	-.07	.18
Justice	1,094	3	.04	.04	.05	.00	.05	.05	.00	.10
Stress	6,834	19	.11	.10	.14	.11	.00	.28	.08	.20
Turnover Intentions	3,170	9	.05	.07	.07	.08	-.03	.18	.00	.14
Anger/Hostility	786	7	.21	.12	.27	.11	.13	.41	.15	.39
Anxiety	978	7	.05	.06	.07	.00	.07	.07	.02	.11
Demographics										
Age	10,222	41	-.02	.15	-.02	.15	-.22	.17	-.08	.04
Sex/Gender (F)	13,448	36	-.05	.14	-.06	.16	-.26	.14	-.11	.00
Tenure (org & job)	2,670	13	-.03	.09	-.04	.07	-.14	.06	-.10	.02
Workload (hrs/week)	365	4	.08	.09	.09	.00	.09	.09	-.01	.20

Note. r_m = mean sample size-weighted correlation; *SDr* = sample size-weighted observed standard deviation of correlations; ρ = mean sample size-weighted correlation corrected for unreliability; *SDρ* = corrected standard deviation of corrected correlations; 80% CV = lower and upper bounds, respectively, of the 80% credibility interval; 95% CI = lower and upper bounds, respectively, of the 95% confidence interval around the corrected mean correlation.

Table 10. Publication Bias Results from Egger's Test of Intercept (Study 2)

Meta-Analysis between Competitive Personality and:	β_0	SE	95% CI	
Academic Performance	.08	.07	-.05	.22
Age	.08	.12	-.14	.31
Extraversion	.08	.17	-.24	.41
Intelligence/Cognitive Ability	.00	.08	-.15	.16
Job Performance – subjective	-.07	.21	-.48	.34
Neuroticism	.00	.12	-.24	.24
Self-Efficacy	.11	.10	-.09	.32
Sex/Gender (F)	-.02	.10	-.21	.17
Social Desirability	.17	.17	-.17	.51
Stress	.20*	.09	.03	.38
Tenure (org & job)	-.15	.09	-.34	.03

Note. β_0 = intercept value from Egger's test (*$p < .05$), SE = standard error, CI = upper and lower bounds of 95% confidence interval around the value of the intercept.

Table 11. Moderator Results by Competitive Personality Measure (Study 2)

	N	*k*	r_m	ρ	SD_ρ	95% CI	
Openness							
WOFO	999	5	.02	.03	.00	-.02.	.07
HPI	1,656	5	.39	.52	.15	.32	.71
Conscientiousness							
WOFO	931	5	.11	.14	.08	.04	.24
HPI	1,456	4	.14	.17	.10	.03	.32
Extraversion							
WOFO	999	5	.04	.05	.09	-.05	.16
HPI	488	3	.52	.74	.50	.16	1.00
JAS	2,943	9	.16	.21	.04	.16	.27
Agreeableness							
WOFO	773	4	-.13	-.16	.20	-.37	.05
HPI	515	3	.16	.27	.17	-.01	.56
Neuroticism							
WOFO	773	4	.03	.04	.08	-.07	.15
HPI	1,429	4	-.20	-.25	.09	-.38	-.12
JAS	2,759	8	.02	.03	.10	-.06	.11
Narcissism							
WOFO	380	3	.33	.41	.00	.31	.52
HCAS	1,843	5	.43	.52	.07	.41	.63
Intelligence/Cognitive Ability							
HPI	675	6	.17	.22	.19	.04	.40
MTQ	822	4	.05	.06	.00	.01	.11
VI	2,982	3	.03	.03	.00	.00	.06
Self-Efficacy							
WOFO	1,746	9	.32	.39	.14	.28	.50
MTQ	819	4	.19	.22	.06	.12	.32
Self-Esteem							
HCAS	1,399	5	-.10	-.11	.00	-.17	-.06
VI	3,349	5	.10	.13	.07	.05	.20
Social Desirability							
WOFO	845	3	-.12	-.16	.16	-.36	.04
JAS	2,587	6	.06	.08	.16	-.05	.22
HCAS	1,290	9	-.42	-.56	.04	-.67	-.45
VI	1,801	4	-.05	-.08	.22	-.31	.16
Academic Performance							
WOFO	1,833	5	.05	.06	.00	.02	.10
HPI	930	4	.15	.19	.13	.04	.34
Job Performance - subjective							
WOFO	1,226	6	.24	.31	.30	.07	.55
HPI	1,094	8	.06	.08	.00	.03	.13
Job Performance - objective							
WOFO	876	4	.19	.22	.18	.03	.40
HPI	269	3	.03	.04	.09	-.13	.20
Job Satisfaction							
JAS	256	3	.04	.05	.00	-.01	.11
VI	1,291	5	-.05	-.07	.09	-.18	.04
Stress							
WOFO	1,057	3	.02	.02	.06	-.08	.11
JAS	2,949	6	.12	.15	.10	.06	.25
VI	2,276	8	.12	.17	.11	.07	.27
Age							
WOFO	1,135	5	-.08	-.09	.10	-.20	.02
JAS	1,220	9	-.01	-.01	.09	-.09	.08
VI	5,975	16	.01	.02	.16	-.07	.10
SOQ	321	3	-.03	-.03	.22	-.31	.24
Sex/Gender (F)							
WOFO	3,417	10	.00	.00	.15	-.10	.10
HPI	376	3	-.08	-.09	.10	-.25	.07
VI	8,639	17	-.06	-.08	.16	-.15	.00
Tenure (org & job)							
WOFO	654	3	-.11	-.12	.00	-.18	-.07
HPI	409	3	.06	.07	.00	-.01	.15
JAS	561	3	-.04	-.05	.00	-.11	.01

Note. r_m = mean sample size-weighted correlation; ρ = mean sample size-weighted correlation corrected for unreliability; SD_ρ = corrected standard deviation of corrected correlations; 95% CI = lower and upper bounds, respectively, of the 95% confidence interval around the corrected mean correlation.

Table 12. Moderator Results by Sample Type (Study 2)

	N	*k*	r_m	ρ	SD_ρ	95% CI	
Extraversion							
Student	3,007	10	.12	.16	.28	-.02	.34
Full-Time Employee	436	4	.18	.23	.19	.01	.45
Clinical	984	4	.19	.25	.00	.17	.32
Neuroticism							
Student	3,883	11	-.01	-.02	.18	-.13	.09
Clinical	984	4	.04	.05	.00	.00	.10
Intelligence/Cognitive Ability							
Student	3653	8	.04	.05	.03	.01	.09
Full-Time Employee	370	3	.05	.06	.00	-.01	.14
Self-Efficacy							
Student	3,081	6	.18	.23	.06	.16	.29
Full-Time Employee	1,396	7	.34	.42	.13	.30	.53
CWB							
Student	621	3	.14	.17	.08	.04	.30
Full-Time Employee	860	4	.24	.31	.11	.17	.45
Stress							
Student	955	3	.11	.13	.09	.01	.26
Full-Time Employee	3,355	14	.08	.10	.14	.01	.19
Anger/Hostility							
Student	288	3	.27	.34	.16	.11	.56
Clinical	411	3	.17	.22	.04	.09	.36
Age							
Student	4,063	12	.05	.06	.14	-.03	.15
Full-Time Employee	4,620	19	-.06	-.07	.14	-.14	.00
Athlete	321	3	-.04	-.05	.23	-.32	.22
Sex/Gender (F)							
Student	6,560	19	.00	.00	.17	-.08	.08
Full-Time Employee	5,731	13	-.09	-.11	.12	-.18	-.04

Note. r_m = mean sample size-weighted correlation; ρ = mean sample size-weighted correlation corrected for unreliability; SD_ρ = corrected standard deviation of corrected correlations; 95% CI = lower and upper bounds, respectively, of the 95% confidence interval around the corrected mean correlation.

Table 13. Regression Results (Study 1)

Outcome	Predictor	β	Standardized β	Standard Error
Task Performance (self-rated)	Intercept	2.54**	0.00**	0.31
	CPS	-0.03	-0.06	0.03
	Extraversion	-0.03	-0.05	0.03
	Agreeableness	0.02	0.03	0.05
	Conscientiousness	0.53**	0.57**	0.04
	Openness	0.08*	0.09*	0.04
	Neuroticism	-0.03	-0.05	0.04
	Narcissism (NPI)	-0.03**	-0.21**	0.01
	Machiavellianism	0.01	0.01	0.03
	Social Desirability	-0.04**	-0.20**	0.01
OCB-I	Intercept	0.88*	0.00*	0.38
	CPS	**0.10****	**0.15****	**0.03**
	Extraversion	0.11**	0.14**	0.04
	Agreeableness	0.42**	0.41**	0.06
	Conscientiousness	0.15**	0.14**	0.06
	Openness	0.14**	0.13**	0.04
	Neuroticism	0.05	0.06	0.04
	Narcissism (NPI)	-0.04**	-0.23**	0.01
	Machiavellianism	0.02	0.02	0.04
	Social Desirability	-0.04**	-0.13**	0.01
OCB-O	Intercept	2.09**	0.00**	0.32
	CPS	0.01	0.01	0.03
	Extraversion	-0.07	-0.10	0.04
	Agreeableness	0.09*	0.10*	0.05
	Conscientiousness	0.51**	0.53**	0.05
	Openness	0.05	0.05	0.04
	Neuroticism	-0.05	-0.07	0.04
	Narcissism (NPI)	-0.03**	-0.20**	0.01
	Machiavellianism	-0.02	-0.03	0.04
	Social Desirability	-0.01	-0.05	0.01
CWB-I	Intercept	2.76**	0.00**	0.37
	CPS	0.00	0.00	0.03
	Extraversion	0.07	0.09	0.04
	Agreeableness	-0.19**	-0.21**	0.05
	Conscientiousness	-0.28**	-0.28**	0.05
	Openness	-0.04	-0.05	0.04
	Neuroticism	0.02	0.02	0.04
	Narcissism (NPI)	0.03**	0.19**	0.01
	Machiavellianism	0.06	0.08	0.04
	Social Desirability	0.02	0.08	0.01
CWB-O	Intercept	2.81**	0.00**	0.33
	CPS	0.00	0.00	0.03
	Extraversion	0.01	0.01	0.04
	Agreeableness	-0.06	-0.07	0.05
	Conscientiousness	-0.34**	-0.38**	0.05
	Openness	0.00	0.00	0.04
	Neuroticism	0.03	0.05	0.04
	Narcissism (NPI)	0.02**	0.16**	0.01
	Machiavellianism	0.05	0.07	0.04
	Social Desirability	-0.01	-0.05	0.01
Work Withdrawal	Intercept	2.84**	0.00**	0.34
	CPS	0.02	0.04	0.03
	Extraversion	-0.01	-0.01	0.04
	Agreeableness	0.02	0.03	0.05
	Conscientiousness	-0.38**	-0.42**	0.05
	Openness	-0.04	-0.04	0.04
	Neuroticism	0.01	0.02	0.04
	Narcissism (NPI)	0.02*	0.14*	0.01
	Machiavellianism	0.06	0.08	0.04
	Social Desirability	-0.01	-0.08	0.01
Job Satisfaction	Intercept	0.91	0.00	0.51
	CPS	**0.13****	**0.15****	**0.04**
	Extraversion	0.22**	0.21**	0.06

Table 13 (continued)

Outcome	Predictor	β	Standardized β	Standard Error
	Agreeableness	0.32**	0.25**	0.08
	Conscientiousness	0.22**	0.16**	0.07
	Openness	0.00	0.00	0.06
	Neuroticism	-0.06	-0.06	0.06
	Narcissism (NPI)	0.00	0.01	0.01
	Machiavellianism	-0.10	-0.09	0.06
	Social Desirability	0.00	0.01	0.01
Job Engagement	Intercept	-0.49	0.00	0.47
	CPS	**0.17****	**0.21****	**0.04**
	Extraversion	0.19**	0.20**	0.05
	Agreeableness	0.22**	0.18**	0.07
	Conscientiousness	0.34**	0.27**	0.07
	Openness	0.14*	0.11*	0.05
	Neuroticism	0.15**	0.16**	0.05
	Narcissism (NPI)	-0.02	-0.09	0.01
	Machiavellianism	-0.03	-0.03	0.05
	Social Desirability	0.01	0.04	0.01
Turnover Intentions	Intercept	3.51**	0.00**	0.76
	CPS	-0.04	-0.03	0.07
	Extraversion	-0.01	0.00	0.08
	Agreeableness	-0.15	-0.09	0.11
	Conscientiousness	-0.45**	-0.25**	0.11
	Openness	0.12	0.07	0.09
	Neuroticism	0.02	0.01	0.09
	Narcissism (NPI)	0.00	0.00	0.02
	Machiavellianism	0.18*	0.13*	0.09
	Social Desirability	0.00	0.00	0.02

Note. $**p < .01$, $*p < .05$; CPS = Competitive Personality Scale.

FIGURES

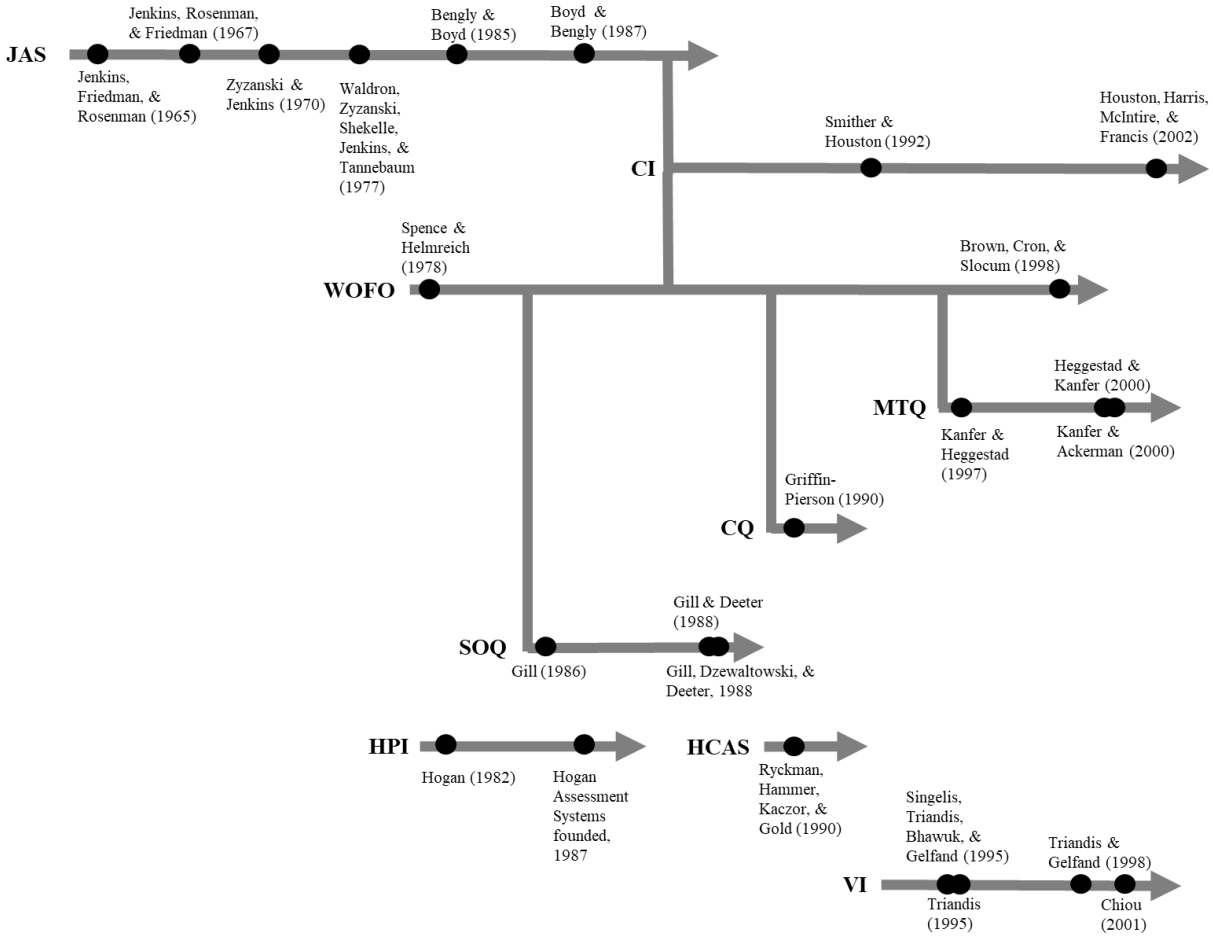

Figure 1. A timeline of competitive personality measurement depicting key citations in the development of nine measures, as well as the manner in which these measures informed each other.

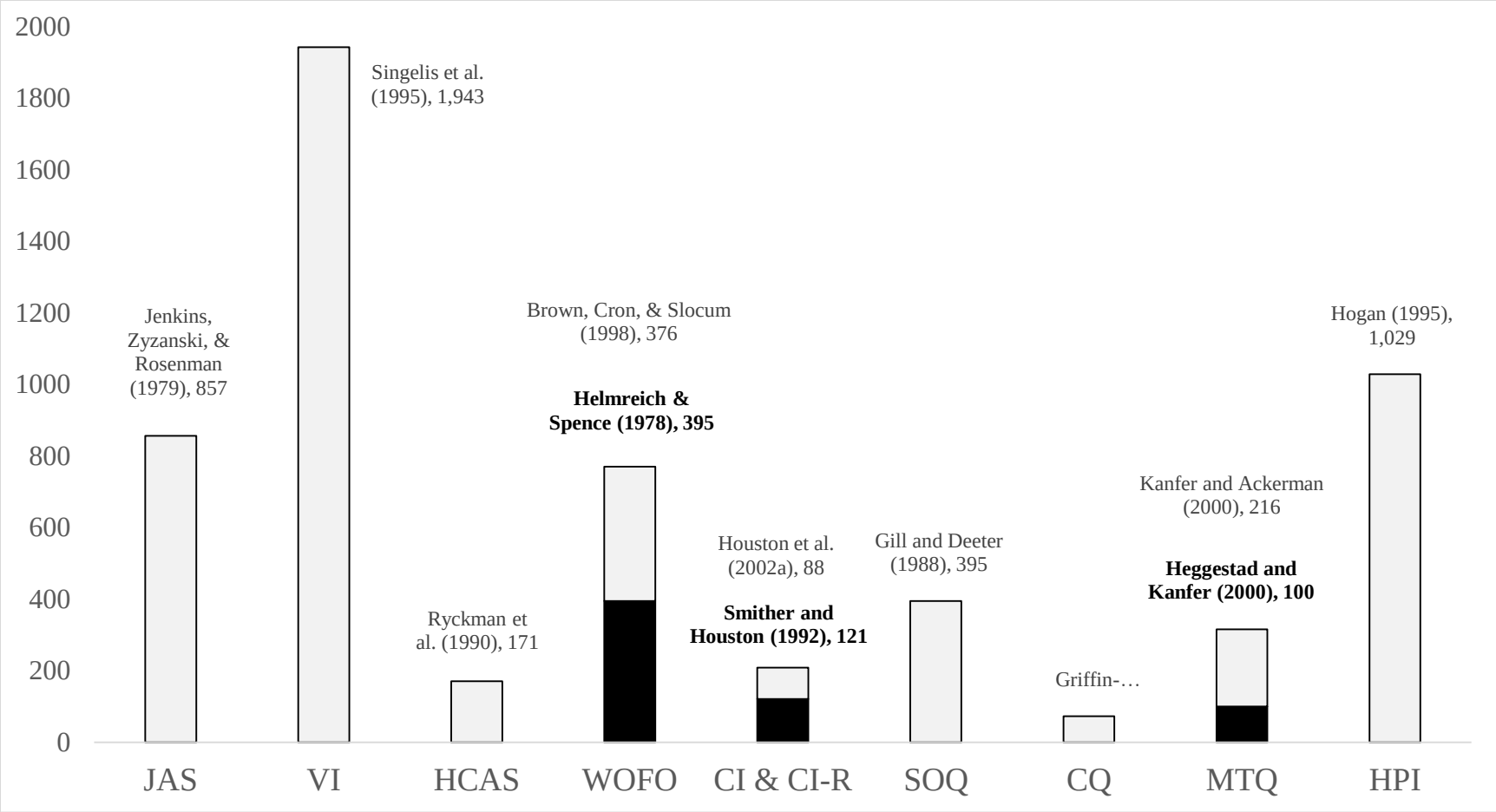

Figure 2. Summary of the popularity of nine competitive personality measures. Each bar represents the number of Google Scholar citations for one measure. Some measures are cited using more than one reference and therefore have multi-colored bars; labels above the bars show which reference(s) are being cited for each measure as well as the number of citations (darker bars correspond to bold labels). Note that Spence and Helmreich's (1978) book has an additional 3,325 citations, but because it is difficult to distinguish researchers citing the book for the WOFO versus citing the book for other measures, it is not depicted in the bar chart. JAS = Jenkins Activity Survey; VI = Vertical Individualism Scale; HCAS = Hypercompetitive Attitude Survey; WOFO = Work and Family Orientation Questionnaire; CI & CI-R = Competitiveness Index & Competitiveness Index-Revise; SOQ = Sport Orientation Questionnaire; CQ = Competitiveness Questionnaire; MTQ = Motivational Trait Questionnaire; HPI = Hogan Personality Inventory.

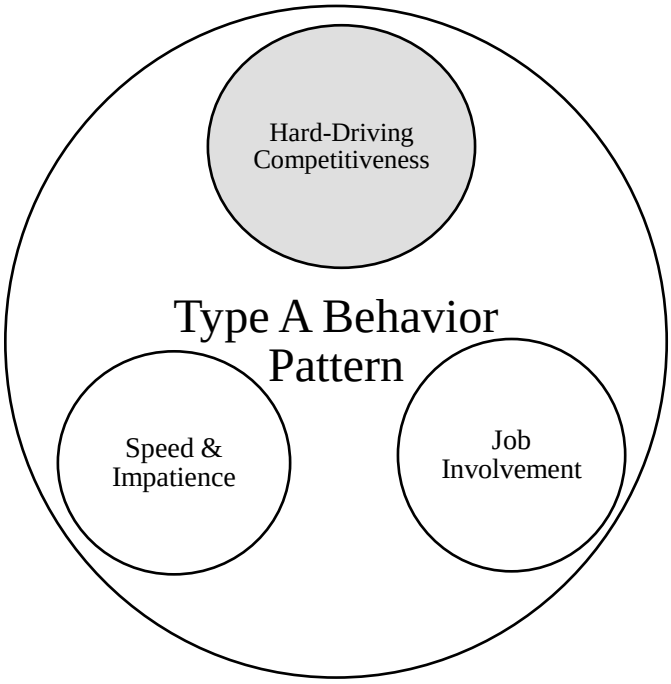

Figure 3. Factor analysis (i.e., Waldron, Zyzanski, Shekelle, Jenkins, & Tannebaum, 1977; Zyzanski & Jenkins, 1970) suggests there are three factors within Type A behavior pattern; the shaded box represents the factor relevant to competitive personality.

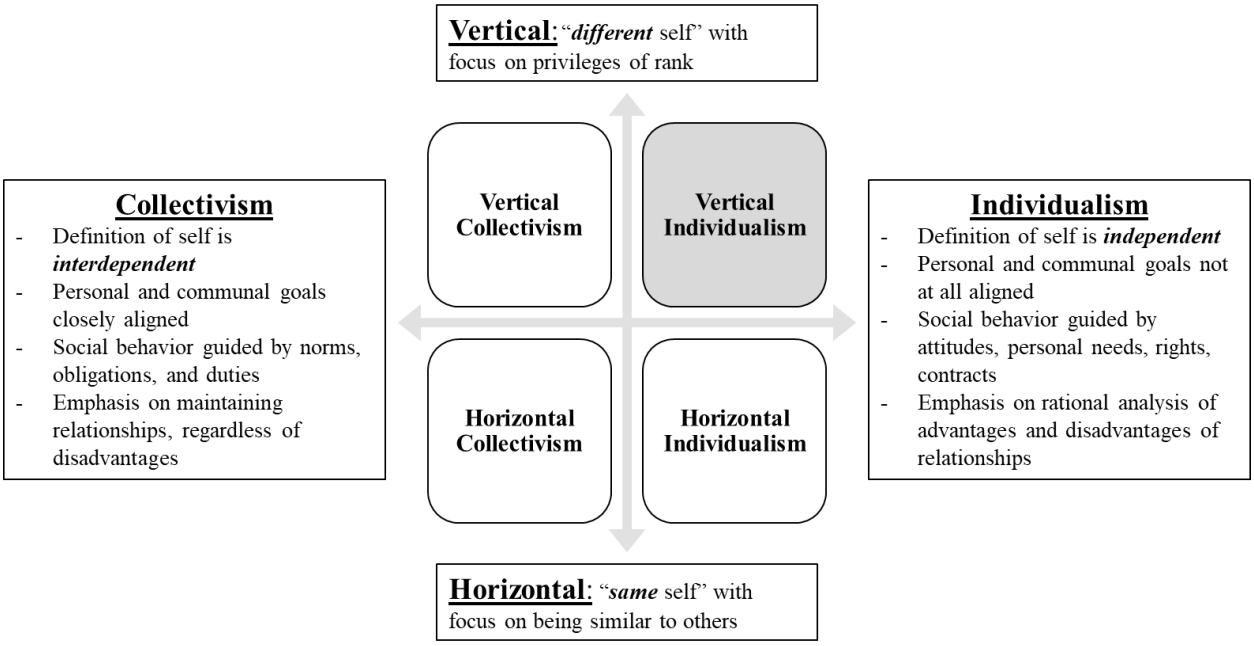

Figure 4. Summary of Triandis's (1995) cultural framework. The shaded box represents the construct relevant to competitive personality.

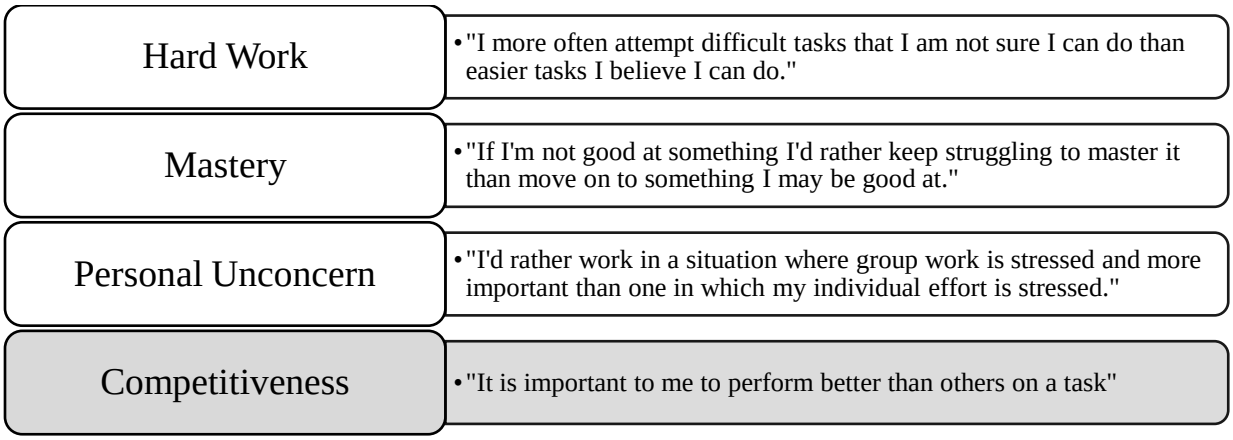

Figure 5. The factors within Spence and Helmreich's (1978) Work and Family Orientation measure, along with a sample item from each (see pp.), are shown above; the shaded box represents the scale relevant to competitive personality.

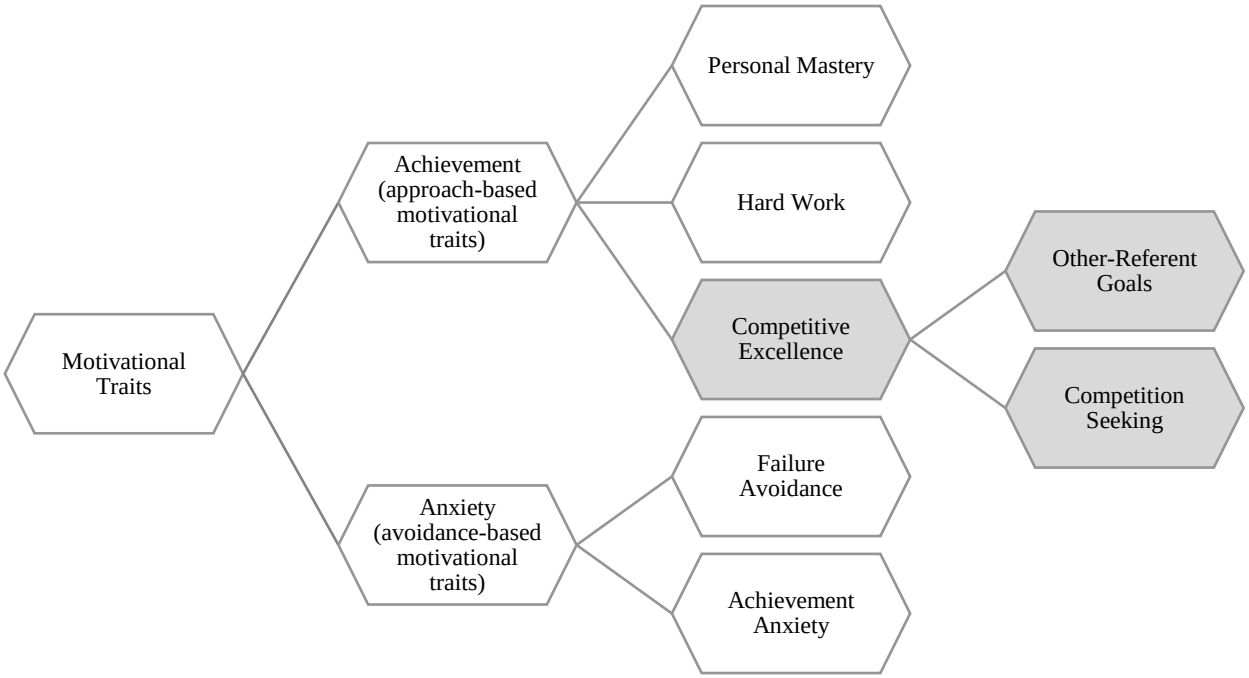

Figure 6. The hierarchy of concepts in the Motivational Traits framework (Heggestad & Kanfer, 2000; Kanfer & Heggestad, 1997; Kanfer & Ackerman, 2000); shaded boxes represent those relevant to competitive personality.

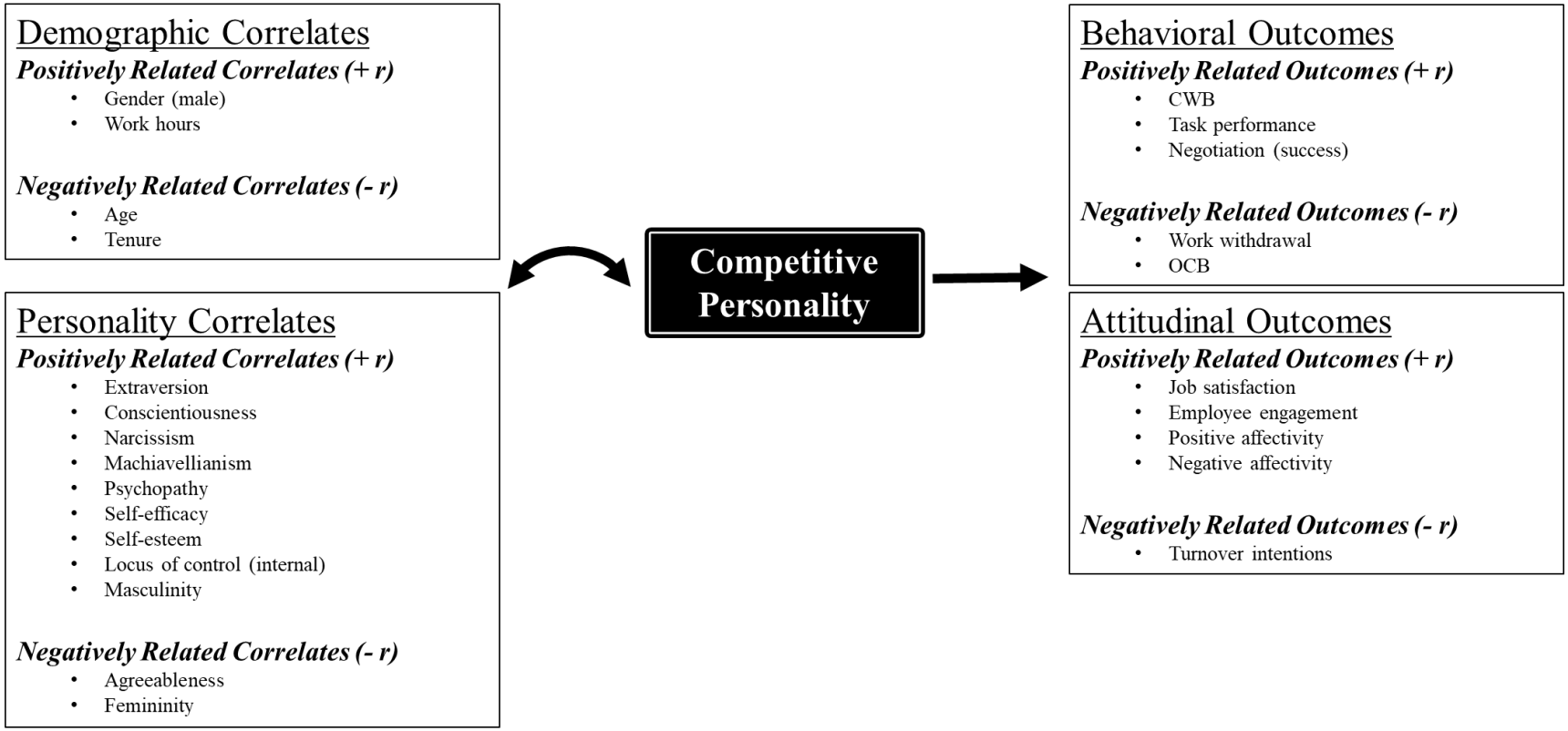

Figure 7. Expected nomological network of competitive personality.

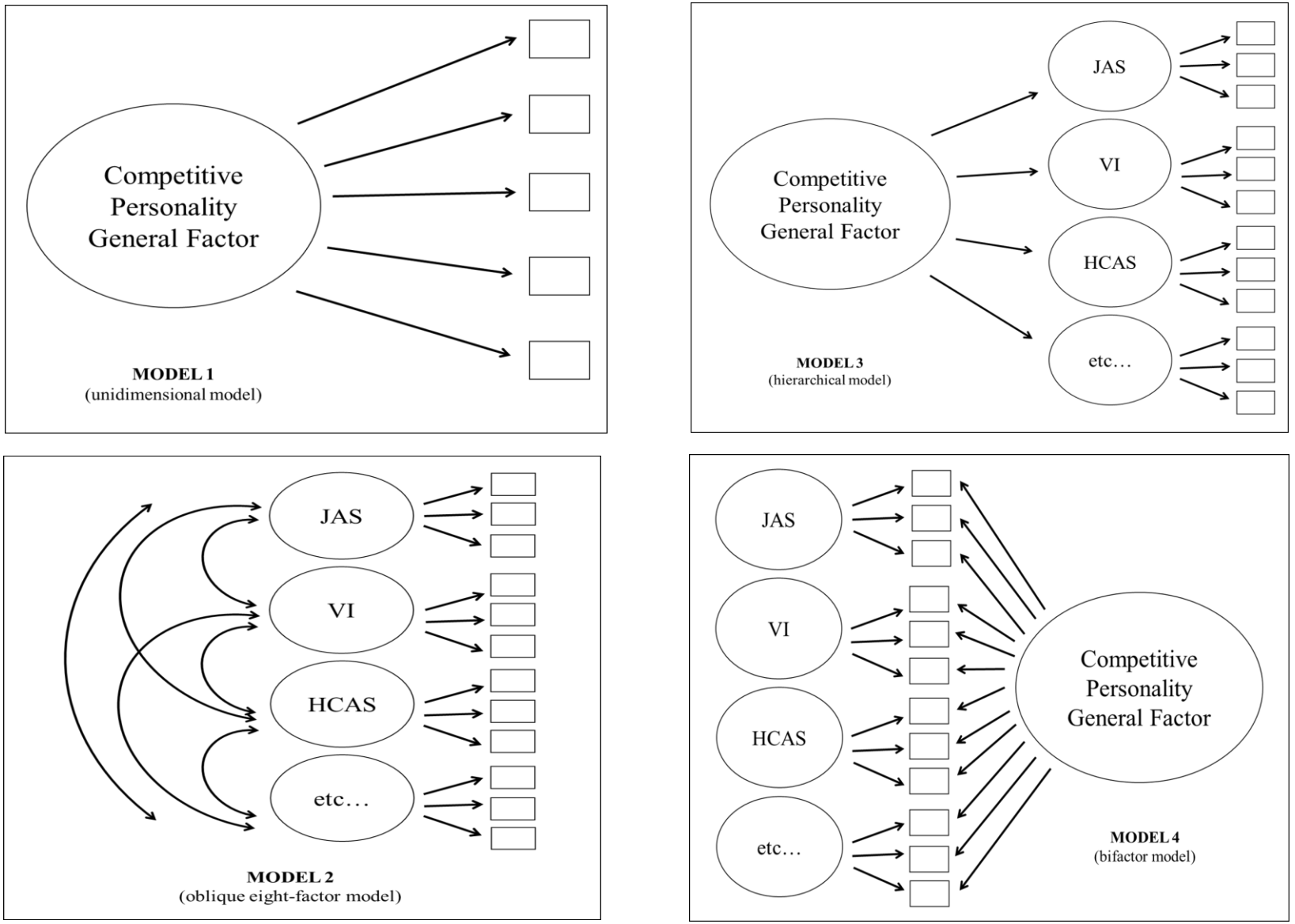

Figure 8. Illustration of the four CFA models tested.

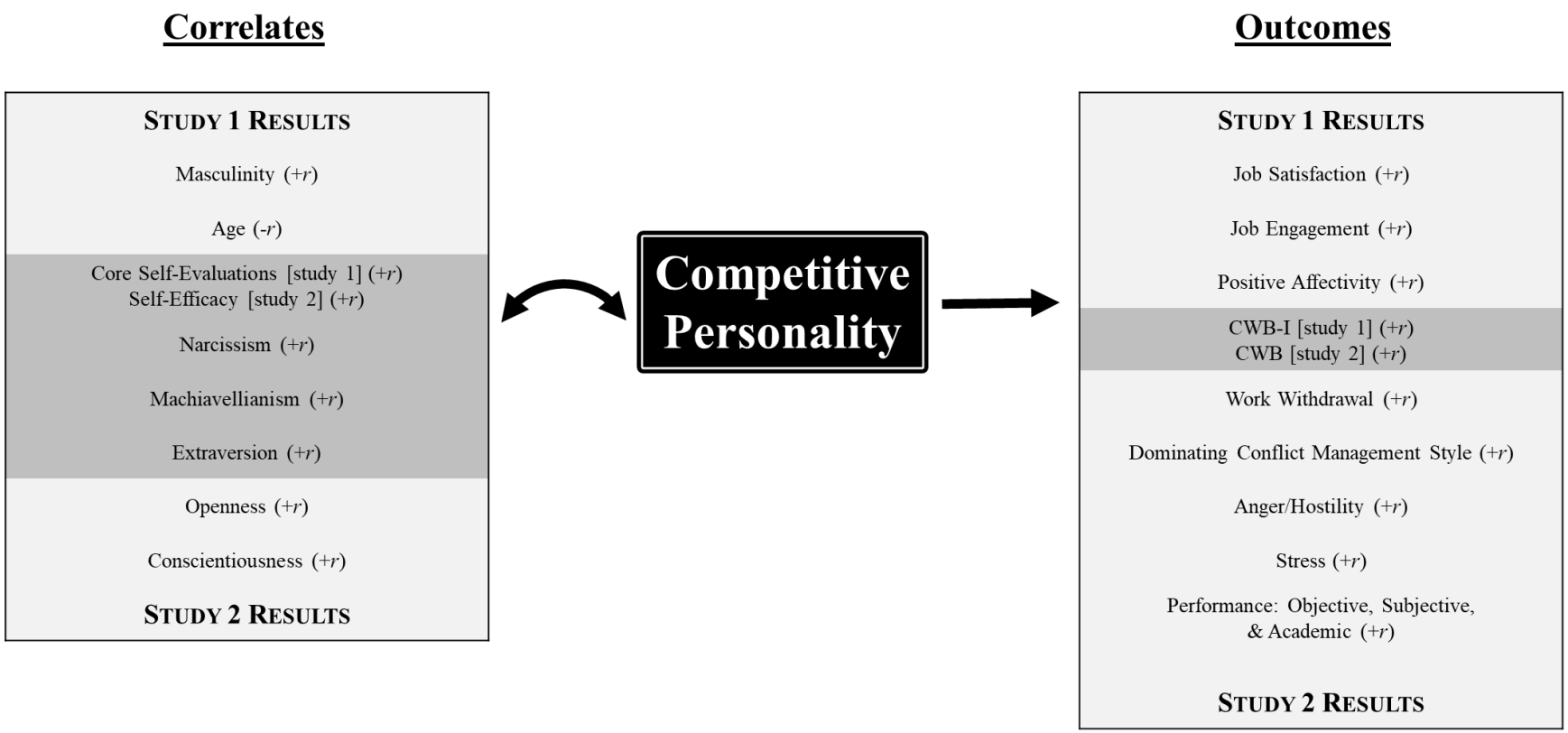

Figure 9. Summary of significant results; results from Study 1 start from the top of each box, and significant results from Study 2 start from the bottom of each box; shaded regions in the middle of each box show results obtained in both Study 1 and Study 2.

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APPENDIX A: ITEMS FROM EIGHT COMPETITIVENESS MEASURES

Jenkins Activity Survey (JAS) – hard-driving competitiveness

Zyzanski & Jenkins, 1970	*Waldron et al., 1977*	*Begley & Boyd, 1985*	*Included in current survey*
Employed in a job which stirs one into action		Job stirs into action	
When younger, definitely hard driving and competitive	Definitely hard-driving and competitive when younger	When younger, hard-driving and competitive	When younger, hard-driving and competitive
Nowadays, still definitely hard driving and competitive	Definitely hard-driving and competitive nowadays	Nowadays, hard-driving and competitive	Nowadays, hard-driving and competitive
Rated definitely hard driving and competitive by wife and friends	Spouse rates definitely hard-driving and competitive	Others rate as hard-driving and competitive	Spouse or closest friend would rate as hard-driving and competitive
Rated too active by wife and friends	Spouse rates generally too active	Others agree-high level of activity	
Gives much more effort than the average worker	Put forth much more effort than average at job	More effort than average worker	
Considers himself more responsible than the average worker	Much more responsible than average worker	More responsibility than average worker	
Hurries much more than the average worker	Hurry much more of the time than average worker	Hurries more than average worker	
Considers himself much more precise than the average worker	Much more precise than average worker	More precise than average worker	
Approaches life much more seriously than the average worker	Approach life much more seriously than average	Takes life more seriously than average worker	
	People definitely disagree you have less energy than most	Others agree--more energy than most people	
	People definitely agree you enjoy competition	Others agree--enjoys competition	Would people who know you well agree that you enjoy a “contest” (competition) and try hard to win?
		Often deadlines on job [Deadlines at work carry considerable pressure; Waldron et al. wording]	
	People definitely agree you tend to hurry		
	People definitely agree you take work too seriously		

Work and Family Orientation Questionnaire (WOFO) – trait competitiveness

Brown, Cron, & Slocum, 1998	*Spence & Helmreich, 1978 (WOFO-2)*	*Helmreich & Spence, 1978 (WOFO-3)*
I enjoy working in situations involving competition with others	I really enjoy working in situations involving skill and competition	I enjoy working in situations involving competition with others
It is important to me to perform better than others on a task	It is important to me to perform better than others on a task	It is important to me to perform better than others on a task
I feel that winning is both important in work and games	I feel that winning is both important in work and games	I feel that winning is both important in work and games
I try harder when I am in competition with other people		I try harder when I am in competition with other people
	When a group I belong to plans an activity, I would rather organize it myself than have someone else organize it and just help out	It annoys me when other people perform better than I do

Vertical Individualism (VI)

Singelis et al., 1995

- It annoys me when other people perform better than I do
- Competition is the law of nature
- When another person does better than I do, I get tense and aroused
- Without competition, it is not possible to have a good society
- Winning is everything
- It is important that I do my job better than others
- I enjoy working in situations involving competition with others
- Some people emphasize winning; I'm not one of them (R)

Competitiveness Index (CI)
Revised Competitiveness Index – enjoyment of competition (CI-R)

Original (Smither & Houston, 1992)	*Revised (Houston et al., 2002a)* *Enjoyment of competition factor*
I like competition	I like competition
I find competitive situations unpleasant (R)	I find competitive situations unpleasant (R)
I don't like competing against other people (R)	I don't like competing against other people (R)
I enjoy competing against an opponent	I enjoy competing against an opponent
I try to avoid competing with others (R)	I try to avoid competing with others (R)
I get satisfaction from competing with others	I get satisfaction from competing with others
I dread competing against other people (R)	I dread competing against other people (R)
I am a competitive individual	I am a competitive individual
Competition destroys friendships	
I will do almost anything to avoid an argument (R)	
I try to avoid arguments (R)	
I often remain quiet rather than risking hurting another person's feelings (R)	
In general, I will go along with the group rather than create conflict (R)	
I don't enjoy challenging others even when I think they are wrong (R)	
I would like to be on a debating team	
Games that have no clear-cut winning are boring	
It's usually not important to me to be the best (R)	
I often try to outperform others	I often try to outperform others
When I play a game I like to keep score	
I don't like games that are winner-take-all (R)	

Competitiveness Questionnaire (CQ)

Griffin-Pierson, 1990

Goal competitiveness

- I would want to get an A because that is the best grade a person can get.
- I do not care to be the best that I can be. (R)
- When applying for an award I focus on my qualifications for the award and why I deserve it, not on how the other applicants compare to me.
- I am not disappointed if I do not reach a goal that I have set for myself. (R)
- Achieving excellence is not important to me. (R)
- I wish to excel in all that I do.
- I would rather work in an area in which I can excel, even if there are other areas that would be easier or would pay more.

Interpersonal competitiveness

- I perform better when I am competing against someone rather than when I am the only one striving for a goal.
- I do not feel that winning is important in both work and games. (R)
- When I win an award or game it means that I am the best compared to everyone else that was playing. It is only fair that the best person win the game.
- In school, I always like to be the first one finished with a test.
- I have always wanted to be better than others.
- When nominated for an award, I focus on how much better or worse the other candidates' qualifications are as compared to mine.
- I would want an A because that means that I did better than other people.
- Because it is important that a winner is decided, I do not like to leave a game unfinished.

Motivational Trait Questionnaire (MTQ) – competitive excellence

Kanfer & Ackerman, 2000

Other referenced goals

- It really upsets me when someone does something better than I do
- I tend to put extra effort into tasks that involve competition with others
- It is important for me to outperform my co-workers
- Whether or not I feel good about my performance depends on how it compares to the performance of others
- I am motivated to do things better than others
- I strive to do my job better than the people I work with
- I compare my performance to that of others

Competition seeking

- I perform best when I compete with others
- I am not a competitive person (R)
- I try to avoid competitive situations (R)
- I would rather cooperate than compete (R)
- I like to turn things into a competition
- Even in non-competitive situations, I find ways to compete with others

Hypercompetitive Attitude Scale (HCAS)

Ryckman et al., 1990

- Winning in competition makes me feel more powerful as a person.
- 1 find myself being competitive even in situations which do not call for competition.
- I do not see my opponents in competition as my enemies. (R)
- I compete with others even if they are not competing with me.
- Success in athletic competition does not make me feel superior to others (R)
- Winning in competition does not give me a greater sense of worth. (R)
- When my competitors receive rewards for their accomplishments, I feel envy.
- I find myself turning a friendly game or activity into a serious contest or conflict.
- It's a dog-eat-dog world. If you don't get the better of others, they will surely get the better of you.
- I do not mind giving credit to someone for doing something that I could have done just as well or better (R)
- If I can disturb my opponent in some way in order to get the edge in competition, I will do so.
- I really feel down when I lose in athletic competition.
- Gaining praise from others is not an important reason why I enter competitive situations. (R)
- I like the challenge of getting someone to like me who is already going with someone else.
- I do not view my relationships in competitive terms. (R)
- It does not bother me to be passed by someone while I am driving on the roads. (R)
- I can't stand to lose an argument.
- In school, I do not feel superior whenever I do better on tests than other students. (R)
- I feel no need to get even with a person who criticizes or makes me look bad in front of others. (R)
- Losing in competition has little effect on me. (R)
- Failure or loss in competition makes me feel less worthy as a person.
- People who quit during competition are weak.
- Competition inspires me to excel.
- I do not try to win arguments with members of my family. (R)
- I believe that you can be a nice guy and still win or be successful in competition. (R)
- I do not find it difficult to be fully satisfied with my performance in a competitive situation. (R)

Sport Orientation Questionnaire (SOQ)

Gill & Deeter, 1988

Competitiveness

- I am a competitive person
- I try my hardest to win
- I am a determined competitor
- I am determined to be the best every time I compete
- I look forward to competing
- I thrive on competition
- My goal is to be the best athlete possible
- I enjoy competing against others
- I want to be successful in sports
- I work hard to be successful in sports
- The best test of my ability is competing against others
- I look forward to the opportunity to test my skills in competition
- I perform my best when I am competing against an opponent

Win

- Winning is important
- Scoring more points than my opponent is very important to me
- I hate to lose
- The only time I am satisfied is when I win
- Losing upsets me
- I have the most fun when I win

Goal

- I set goals for myself when I compete
- I am most competitive when I try to achieve personal goals
- I try hardest when I have a specific goal
- Performing to the best of my ability is very important to me
- Reaching personal performance goals is very important to me
- The best way to determine my ability is to set a goal and try to reach it

APPENDIX B: SAMPLE DETAILS

Table B1. Differences between Time 1 Only and Time 1-Time 2 Participants

Personality Variable	Mean (time 1 only)	Mean (time 1-time 2)	*t*	*p*-value	CI-95
Competitive Personality (CPS)	3.15	3.28	1.16	.25	[-.09, .33]
Extraversion	3.05	3.10	.60	.55	[-.13, .23]
Agreeableness	3.82	3.73	-.93	.35	[-.20, .07]
Conscientiousness	3.91	4.08	2.32	.02	[.03, .31]
Openness	3.73	3.71	-.35	.73	[-.15, .11]
Neuroticism	2.52	2.49	-.30	.77	[-.20, .15]
Social Desirability	6.18	6.47	.84	.40	[-.38, .95]
Narcissism (NPI)	4.85	4.70	-.39	.70	[-.93, .62]
Grandiose Narcissism	2.58	2.53	-.49	.62	[-.25, .15]
Machiavellianism	3.09	2.92	-2.09	.04	[-.33, -.01]
Core Self-Evaluations	3.68	3.74	.69	.50	[-.11, .22]
Masculinity	3.51	3.64	1.69	.09	[-.02, .26]
Femininity	3.79	3.73	-.99	.32	[-.19, .06]

Note. Welch's t-test for two independent samples with differing variances was used to obtain *t* values; CI-95 = 95% confidence interval about the value of the difference between the two group means; CPS = Competitive Personality Scale.

APPENDIX C: META-ANALYSIS LITERAURE SEARCH

Table C1. *PsycINFO* Search Results

Search Term	Number of Results	Number of Studies Collected
Jenkins Activity Survey + Hard-Driving	76	27
Type A + Hard-Driving; Type A + Competitiveness	266	47
Work and Family Orientation Questionnaire	62	20
Trait Competitiveness	30	20
Hogan Personality Inventory	190	24
Vertical individualism	168	60
Competitiveness Index	69	6
Interpersonal Competitiveness	12	2
Motivational Trait Questionnaire	37	10
Hypercompetitive Attitude	29	13
Sport Orientation Questionnaire	60	11
TOTALS	**999**	**240**

Table C2. *Google Scholar* Search Results

Search Term	Number of Results	Number of Studies Collected
Jenkins, Zyzanski & Rosenman, 1971; 1979 + hard-driving	98	1
Helmreich & Spence, 1978 + competitiveness	246	5
Hogan & Hogan, 2007 + competitiveness [NOTE: Hogan & Hogan's (2007) Hogan Personality Inventory 3rd edition is listed under Hogan (1995) in Google Scholar]	351	4
Singelis, Triandis, Bhawuk, & Gelfand, 1995 + vertical individualism	1010	3
Smither & Houston, 1992	121	1
Houston, Harris, McIntire, & Francis, 2002	88	1
Griffin-Pierson, 1990	73	0
Heggestad & Kanfer, 2000	100	0
Ryckman, Hammer, Kaczor & Gold, 1990	171	3
Gill & Deeter, 1988	395	0
TOTALS	**2653**	**18**

APPENDIX D: COMPETITIVE PERSONALITY SCALE

Table D1. Development of the Competitive Personality Scale (CPS)

Item	loading on competitive personality general factor	intercept	intercept bucket	correlations with relevant variables						
				BFI-E	Job.Eng	PA	NPI	G.Nar	Mach	PAQ-M
MTQ-CS_6: Even in non-competitive situations, I find ways to compete with others.	.71	2.04	1	0.22	0.14	0.16	0.44	0.41	0.4	0.26
MTQ-CS_5: I like to turn things into a competition.	.78	2.08	1	0.29	0.15	0.24	0.46	0.41	0.4	0.38
SOQ-C_6: I thrive on competition.	.82	2.23	1	0.35	0.21	0.32	0.48	0.4	0.31	0.43
MTQ-CS_2: I am not a competitive person. [R]	.76	2.30	2	0.34	0.26	0.26	0.29	0.17	0.22	0.47
CQ_1: I perform better when I am competing against someone rather than when I am the only one striving for a goal.	.74	2.33	2	0.21	0.17	0.24	0.34	0.35	0.39	0.28
SOQ-C_11: The best test of my ability is competing against others.	.81	2.34	2	0.24	0.2	0.23	0.37	0.39	0.41	0.36
SOQ-C_5: I look forward to competing.	.85	2.41	2	0.36	0.26	0.32	0.43	0.37	0.31	0.46
SOQ-C_12: I look forward to the opportunity to test my skills in competition.	.86	2.43	2	0.35	0.29	0.34	0.41	0.38	0.33	0.47
SOQ-C_13: I perform my best when I am competing against an opponent.	.83	2.43	2	0.28	0.18	0.25	0.41	0.38	0.38	0.38

Table D1. (continued)

Item	loading on competitive personality general factor	intercept	intercept bucket	correlations with relevant variables						
				BFI-E	Job.Eng	PA	NPI	G.Nar	Mach	PAQ-M
MTQ-ORG_3: It is important for me to outperform my co-workers.	.76	2.48	3	0.23	0.21	0.21	0.42	0.43	0.45	0.33
CI-R_8: I am a competitive individual.	.88	2.49	3	0.36	0.26	0.33	0.38	0.32	0.33	0.49
VI_7: I enjoy working in situations involving competition with others.	.84	2.51	3	0.34	0.23	0.31	0.4	0.36	0.32	0.46
SOQ-C_1: I am a competitive person.	.87	2.51	3	0.33	0.23	0.31	0.38	0.33	0.32	0.46
SOQ-C_8: I enjoy competing against others.	.86	2.52	3	0.33	0.23	0.29	0.41	0.34	0.33	0.45
CI-R_4: I enjoy competing against an opponent.	.83	2.55	3	0.34	0.24	0.31	0.39	0.32	0.33	0.47
SOQ-W_2: Scoring more points than my opponent is very important to me.	.82	2.55	3	0.21	0.18	0.21	0.45	0.43	0.45	0.36
MTQ-CS_1: I perform best when I compete with others.	.83	2.55	3	0.27	0.19	0.25	0.41	0.34	0.37	0.38
CI-R_6: I get satisfaction from competing with others.	.87	2.55	3	0.3	0.26	0.29	0.39	0.34	0.37	0.44
WOFO_1: I enjoy working in situations involving competition with others.	.83	2.60	3	0.32	0.26	0.33	0.37	0.34	0.3	0.46
CI-R_1: I like competition.	.87	2.62	3	0.36	0.3	0.36	0.4	0.31	0.31	0.47
HCAS_13: Competition inspires me to excel.	.81	2.62	3	0.27	0.26	0.27	0.29	0.25	0.32	0.4
SOQ-W_1: Winning is important.	.73	2.78	4	0.17	0.17	0.19	0.39	0.38	0.42	0.32
CI-R_9: I often try to outperform others.	.81	2.80	4	0.22	0.21	0.22	0.4	0.35	0.41	0.39

Table D1. (continued)

Item	loading on competitive personality general factor	intercept	intercept bucket	correlations with relevant variables						
				BFI-E	Job.Eng	PA	NPI	G.Nar	Mach	PAQ-M
WOFO_2: It is important to me to perform better than others on a task.	.76	2.84	4	0.2	0.22	0.23	0.37	0.39	0.44	0.37
SOQ-C_4: I am determined to be the best every time I compete.	.77	2.85	4	0.33	0.31	0.37	0.37	0.31	0.31	0.47
MTQ-ORG_2: I tend to put extra effort into tasks that involve competition with others.	.72	2.86	5	0.19	0.25	0.29	0.31	0.24	0.35	0.34
WOFO_3: I feel that winning is both important in work and games.	.76	2.87	5	0.23	0.23	0.28	0.4	0.4	0.43	0.32
MTQ-ORG_6: I strive to do my job better than the people I work with.	.71	2.96	5	0.25	0.26	0.29	0.33	0.35	0.39	0.36
MTQ-ORG_5: I am motivated to do things better than others.	.74	2.97	5	0.27	0.24	0.26	0.36	0.29	0.36	0.38
SOQ-C_3: I am a determined competitor.	.82	2.97	5	0.3	0.28	0.32	0.37	0.3	0.33	0.46
SOQ-C_2: I try my hardest to win.	.77	3.04	5	0.25	0.24	0.3	0.35	0.31	0.34	0.43
WOFO_4: I try harder when I am in competition with other people.	.73	3.06	5	0.17	0.18	0.21	0.29	0.26	0.35	0.3
JAS_4: Would people who know you well agree that you enjoy a “contest” (competition) and try hard to win?	.76	3.39	5	0.34	0.2	0.31	0.4	0.32	0.31	0.46

Note. Loadings and intercepts based on Model 4A: bifactor model without item parceling; SOQ-C = Sport Orientation Questionnaire-Competitiveness subscale, VI = Vertical Individualism Scale, CI-R = Competitiveness Index Revised, WOFO = Work and Family Orientation Questionnaire, BFI-E = Big Five Inventory Extraversion Scale, Job.Eng = Job Engagement, PA = Positive Affect, NPI = Narcissistic Personality Inventory, G.Nar = Grandiose Narcissism, Mach = Machiavellianism, PAQ-M = Personal Attributes Questionnaire Masculinity Scale.

Competitive Personality Scale (CPS)

1. I thrive on competition.
2. I look forward to competing.
3. I enjoy working in situations involving competition with others.
4. I often try to outperform others.
5. I feel that winning is important in both work and games.[14]

[14] Note that wording of this item was changed from the original form ("I feel that winning is both important in work and games") for grammatical clarity.